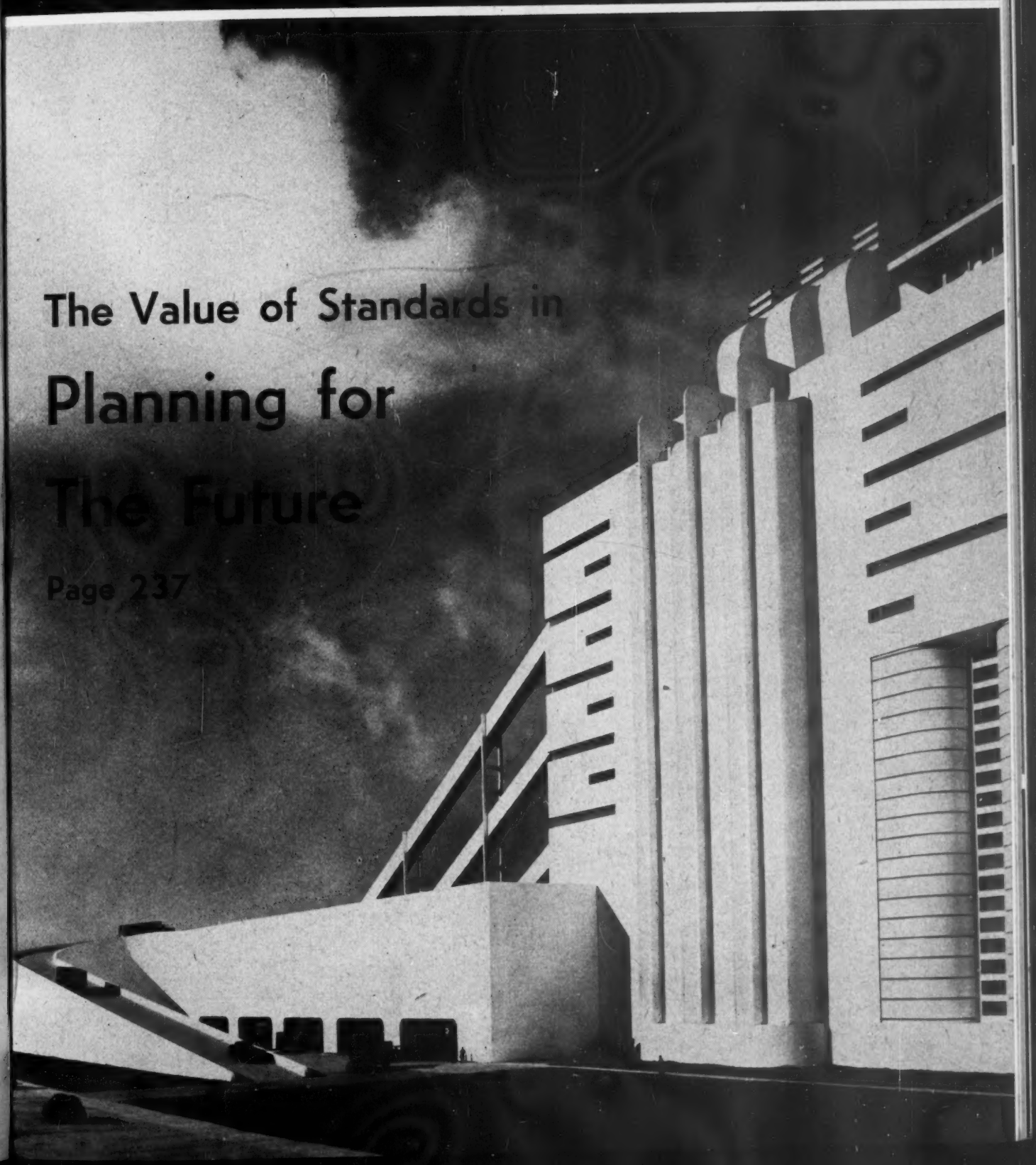
Industrial

October 1947

Standardization



The Value of Standards in Planning for The Future

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Readers Write

"Flammable" Preferred By Safety Organizations

Seattle, Washington

Gentlemen: I was surprised to read in your May issue that your influential organization is endorsing use of the term "flammable," which has not yet been admitted to the English language, in place of the word "inflammable." "Inflammable" undoubtedly is used innumerable times in the laws of the United States and of all of its subdivisions, and the project of rooting it out and eliminating it looks like an interminable undertaking. "Inflammable" is established in shipping instructions, postal regulations, and trade labeling from the time that the hazard of fire was recognized in such shipments.

I cannot see how it will relieve the confusion of the New York housewife if the word "inflammable" is replaced by "flammable," which is not even in the dictionary. I think it will be a hardy manufacturer who pioneers the use of the proposed term on his labels, as I doubt that it would be recognized by the courts as an adequate warning against a fire hazard.

It has been my past impression that use of the term "flammable" was a sign of scientific illiteracy. My impression, on finding it used throughout the National Safety Council's Accident Prevention Manual, was much the same that I would expect if I were to buy a new and widely advertised History of the United States, and find our chief executive's title invariably stated as "prexy."

I conceive it the duty of the ASA to publish its standards in clear Webster English, avoiding trade argot wherever possible. There are too many words in the language already, without going to the trouble of inventing another one by a confusing amputation.

L. O. PARIS

• • Mr Paris is correct in claiming that "flammable" does not appear in Webster's Collegiate edition of the dictionary, but Webster's New International Dictionary (Unabridged) says: "*flammable*—capable of being easily ignited; inflammable." The Greater New York Safety Council, as well as the National Fire Protection Association and the American Society for Testing Materials, have endorsed the use of "flammable" and "nonflammable" because of the common belief that the prefix "in-" always means "not," "non," or "un," as in the words "inactive," "incapable." By that token, the word "inflammable" might appear to mean "not combustible." On the other hand,

Company Members

More than 2100 companies hold membership either directly or by group arrangement through their respective trade associations

the word "flammable," by its very sound, implies flame or fire. The fact that it is used by the national organizations in the safety and fire-fighting fields has given it authoritative standing as a correct technical term.

Booklet Describes Safety Standards

Veterans Employment Center
Michigan Unemployment Compensation Commission
Detroit, Michigan

Gentlemen: This counseling center is preparing a series of monographs on Detroit area occupations covering, among other things, the hazards which an entrant into these particular fields is likely to encounter. We understand that you have a series of booklets describing occupational hazards in particular occupations or industries.

MURTON PEER
Acting Manager

• • The booklet, "American Safety Standards," describing all the standards in the safety field, was forwarded to Mr Peer.

Standard Covers Backflow Preventors

Gulf, Mobile & Ohio Railroad Company
Chicago, Illinois

Gentlemen: The United States Public Health Service recently made a survey of our watering point facilities and as a result made the recommendation that the water supply line used for soil can cleaning should be equipped with a backflow prevention device recommended or approved by the American Standards Association. As we are not familiar with the backflow prevention device as recommended by your Association, I am wondering whether you have a standard to cover.

W. A. BENDER
Assistant to Vice-President & General Manager

• • The American Standard referred to is Backflow Preventors in Plumbing Systems, A40.6-1943.

Our Front Cover

In planning industrial plants, engineering and architectural standards can be blended into harmonious designs. Design of model of food processing plant by the Austin Company.

Industrial Standardization

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October, 1947 Ruth E. Mason, Editor 35 Cents

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The American Standards Association is a federation of national groups dealing with standardization. Through it, government, industry, labor, and the consumer work together to develop mutually satisfactory national standards. It acts as the authoritative channel for international cooperation in standardization work.

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Modular Service Association.

To use modular products, East Tennessee Baptist Hospital is designed on 4-inch module. See story of modular coordination page 243.

The Value of Standards In Planning for the Future

Standard solutions for many problems may be assembled into top management's plans for organization and operation

By John Gaillard

Mechanical Engineer, American Standards Association

MORE than twenty years ago, Albert W. Whitney, then chairman of the American Engineering Standards Committee,[1] characterized standardization as "the habit-forming process in industry" which "relegates the problems that have been already solved to their proper place, namely to the field of routine, and leaves the creative faculties free for the problems that are still unsolved."[2] This was a remarkably advanced conception of the nature of standardization at a time when, as Whitney said, it was not uncommon "to see articles and editorials and letters in the public press deploring the state of uniform mediocrity that standardization will produce if allowed to have its way."

Aspects of the Habit-Formation Concept

Whitney's conception was full of significance as to the value of standardization as a distinct function of industrial management. In fact, it implied that standardization could relieve the executive's mind of many things, thus saving his time and energy for matters that required his personal attention. As Howard Coonley has testified: "The use of effective standards is one of the most reliable tools an executive can have to reduce the pressure under which he lives."[3]

This aspect of Whitney's picture of standardization can be expected to appeal to the executive. However, since his paper was written, there has been considerable further development in the art of standardization and it may well be emphasized now that standardization is not merely a process of "habit formation" in industry but that it can be effectively used in industrial planning. This point is important because planning is of particular interest to top management.

The term "habit formation" suggests that standardization can be applied successfully only to matters that have already become generally adopted. In fact, standardization has sometimes been called "crystallization of existing practice." This term may be correct in some cases, just as it may sometimes be true to say that a standard has "grown up" in the course of years or even centuries, as in the case of languages and traditions. Up to the present time it is doubtless true that industrial standardization has been applied almost exclusively to bring order out of the confusion caused by a lack of standards or by the existence of conflicting standards. It is now recognized, however, that it can also be used to "design" new standards so as to prevent confusion instead of curing it.

The viewpoint that standardization is a remedy rather than a creative function was due largely to the fact that standardization came into the spotlight as an important factor in national economy as a result of World War I. The general surge in systematizing and expanding the application of industrial standardization was caused by the convergence of two waves of necessity: (1) the critical demands of mechanized warfare in World War I, and (2) the increased need of central coordination in industrial management resulting from the ever-expanding decentralization of functions in mass production. After the end of World War I, there appeared to be innumerable possibilities for successful application of standards to peacetime problems. Thus, the lack of interchangeability of screw threads, a major handicap found to exist in the United States during World War I when fuzes did not fit shells, had its counterpart in many branches of industry. In practically all countries where a national standardization movement was organized, it was started in the mechanical field, gradually expanding into other engineering branches, and, finally, into consumer goods. In the first ten years after the Armistice of 1918, the accent was definitely on such matters as dimensional standards, material specifications and methods of testing, drafting room practice, definitions, abbreviations and symbols used in engineering, and so on. Projects of this kind led to compilation and tabulation of innumerable data as material for national (and later also international) committees of engineers to work on.

Under these conditions, the executive at first was naturally inclined to consider standardization as a technical function which could be safely entrusted to the experts in charge of the various departments in his company. In fact, he might have claimed that this was just what Whitney had in mind when he said that standardization "leaves the creative faculties free for the problems that are still unsolved." Since there is no doubt that the ability to plan is a creative,

[1] Now the American Standards Association.

[2] "The Place of Standardization in Modern Life," reprinted in INDUSTRIAL STANDARDIZATION, January, 1943.

[3] "Standards—Effective Tool for Managerial Control," by Howard Coonley, INDUSTRIAL STANDARDIZATION, June, 1939.

British Combine.

Modern war machines, products of close coordination of military and industrial planning, have destroyed forever countless creations of artists, architects, and craftsmen whose standards had grown up by tradition in the course of centuries. Standards must now be designed to provide a solid technical and economic structure to serve as a framework in building a new world.

and moreover, a typical executive faculty, did not his statement mean that the executive should give his entire attention to such functions as planning and refrain from occupying himself with standardization? No doubt, this was Whitney's intention in so far as details of technical standards are concerned. But an important matter that Whitney did not discuss (since his paper deals with the broad significance of standardization in human life and not with principles of industrial organization) is how the process of standardization should be administered in an individual manufacturing concern. Who should be in charge of this process? Or, to persist in Whitney's analogy, how should the habit-forming process of industry be handled in an individual company?

In order to answer this question, let us look for a moment at the human brain.

The Brain Has Its Standards Department

The early vertebrates, millions of years ago, were provided with sensory nerves as well as motor nerves, but there was no integration between the two kinds. The nervous system simply consisted of a cord running lengthwise through the body (like our spinal cord), with sensory and motor nerves alternatively branching off. Accordingly, this primitive animal, although able to receive impressions and move around, had no means of coordinating its impressions and its actions. It had no "tele-receptors," no organs for receiving distance stimuli, such as by vision. In its nervous system there was nothing that could be properly called a brain, nor could any portion of its body be called a head. Although equipped to function in an elementary manner, this organism was a picture of lack of organization.

In the course of millions of years, nature improved this design by integrating the sensory and motor nerves and by creating a central coordinating agency in the form of a brain. This brain came to be contained in a head which was also provided with means for making observations at a distance, such as by vision and hearing. The new model of vertebrate was thus able not only to coordinate, but also to plan, because it could make observations in advance of the time at which it had to take action. Similarly, still more millions of years later, human organization developed management capable of observing business opportunities and of making decisions to utilize them. In time, executive planning became a primary function of management.

But nature found it could do still better. The long and continuous grind of repetitious functions performed by the brain led to their assignment to a special department of the brain, the small brain or "cerebellum." To this organ the control of such routine matters as breathing, blood circulation, and maintenance of equilibrium were transferred in the course of the ages as the vertebrates developed. The major portion of the brain thus could concentrate on non-routine matters, such as observations of outside occurrences and decisions for action.

We can directly translate this development of a cerebellum into terms of industrial management. Just as a brain was created to exert coordinated control of an organism, so was top management developed to organize and operate an industrial concern. Again, just as the cerebellum took over certain routine functions of the brain, just so a standards department in a company took over the establishment of numerous rules, regulations, and specifications affecting the technical as well as the management side of the business. Among these technical specifications are methods, operations, and processes affecting the design, manufacture, and inspection of the company's product, and in the management field, specifications for the selection and training of personnel and the duties and responsibilities of those in charge of various functions.

Value of Automaticity and Skill in Planning

What has habit formation to do with planning for the future? Since the beginning of this century habit formation has come to be recognized as an important factor in the relationship between the individual worker and an industrial organization. Studies of motion and fatigue have shown the importance of automaticity or standardized behavior in acquiring skill in repetitive work. Here, a practically complete habit pattern can be developed, which saves the work-

The scientific approach to the problem of human wants and the application of this approach to the organization and operation of industrial units will lead to new forms of beauty created by planned functionalism.

Charles Phelps Cushing.

er's energy by eliminating the necessity of planning and making decisions, and which furthermore cuts down his cycle time. Whether such complete automaticity in a human being's behavior is something to strive for, or whether we should bend our efforts to assign to machines work that can be almost completely automatized, is a problem of great importance but not essential to the present discussion. Here, we are interested primarily in drawing a parallel between performance of work by an individual as an elementary organism, and performance of work by an organization, as a composite organism.

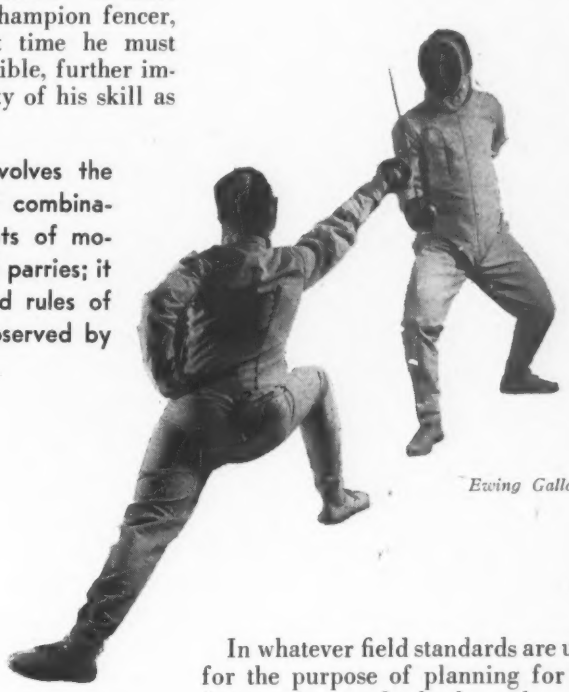
Clearly, where planning is involved, mere automaticity or standard patterns of behavior are not sufficient to produce results. Planning basically consists in assembling a series of coordinated decisions on actions to be taken. In so far as these actions involve solutions of problems, the solutions either may be available to the planner or they may still have to be worked out. In this respect planning is like the design of a machine in that the work is expedited if there are readily available standard subassemblies (or standard solutions) that fit into the general plan without change or adaptation. This is true for any kind of planning, industrial or otherwise. Some years ago a surgeon reported the successful use of "spare parts" made of the metal alloy, vitallium, for repairing skull defects after a brain operation. He had found that almost any defect could be repaired by means of plates made for stock in only three different lengths and two widths.

In another departure from the industrial field, a striking demonstration of the value of automaticity in relation to skill is found in sports. The slowed-down motion picture, or "time magnifier" as it has been called, shows us the beauty of the coordinated motions of the athletic champion which, due to their swiftness, cannot be resolved by the human eye in direct observation. The action of the high-board diver is almost completely automatic, each jump being a standard cycle of motions, designed, practiced, and perfected to the point of control by the athlete alone. But the case of the fencer is different. When engaged in a bout, he is continuously occupied in planning the next move, whether offensive or defensive, and this planning has to be flashlike—a matter of exceedingly short reaction time. Yet, however fast he may observe and decide, his decision to act would help him little if he had not literally at his fingers' tips a set of standard attacks and parries which he brings into play almost as reflexes when the opportunity or need arises.

Standards Prepared in Advance

Here we have a striking demonstration of standard or automatic actions and reactions carefully worked out in advance of their need. It takes years to develop a champion fencer, and during all that time he must maintain and, if possible, further improve the automaticity of his skill as an indispensable supplement to his high-speed planning. Gradually, he will develop more complicated standard operations, or combinations of actions, which will increase his speed. Similarly, the champion chess player will be mentally stocked with a number of opening games and other combinations of moves which may stand him in good stead as standard patterns while he is planning his attack and trying to counter his opponent's moves—the more in advance the better.

Fencing not only involves the flashlike planning of combinations of standard sets of motions into attacks and parries; it also involves standard rules of behavior carefully observed by the true sportsman.



Ewing Galloway.

These illustrations are symbolic of a principle too often disregarded. Industrial standards, like individual skill, cannot be developed at short notice. They take time and, hence, standards must be prepared, whenever possible, before the need of their application arises.

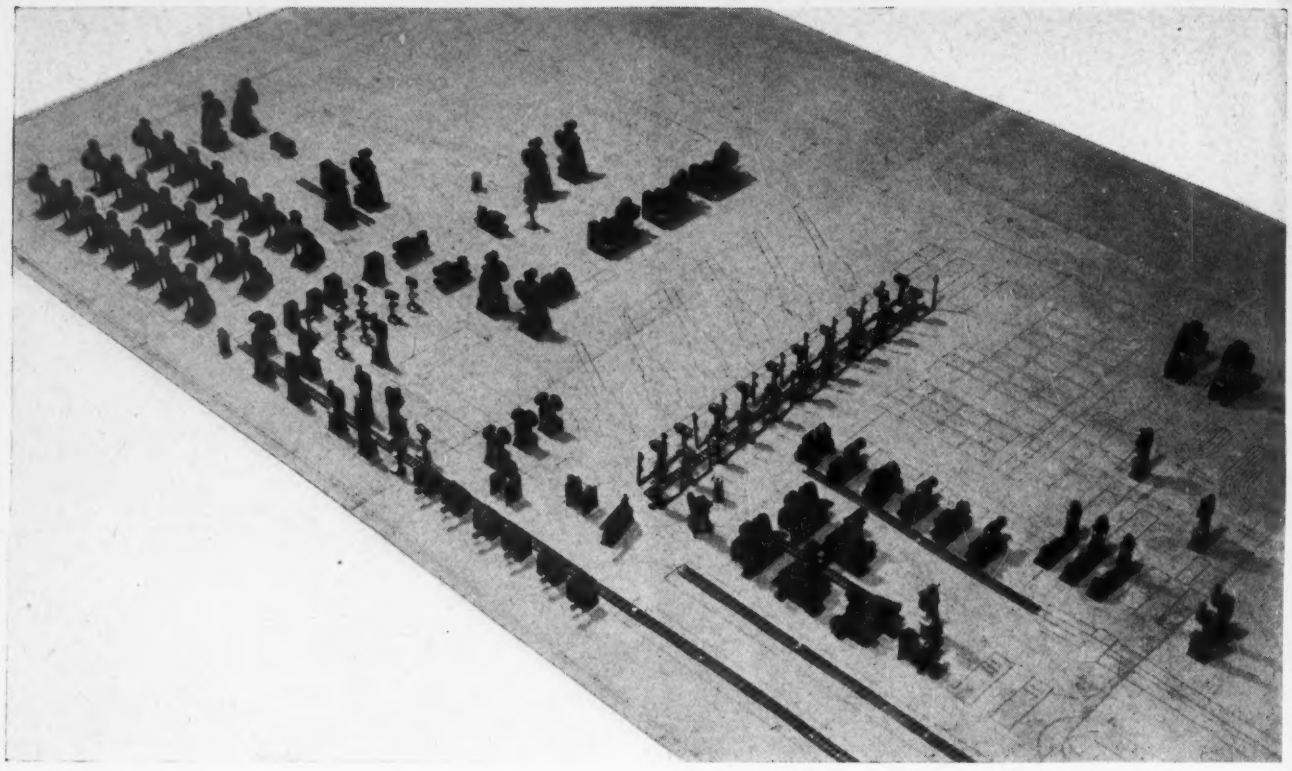
The value of standards in planning, then, is that they may provide solutions of a number of problems as "standard unit assemblies" to be combined into various plans as the need arises. In the same way, production machines such as machine tools and textile machinery have been designed as combinations of standardized components, subassemblies, and assemblies, which combinations can be varied to meet changes in the design, say, of an automobile engine from one year to another, or changes in customer demand for textile goods. Looms made to produce marquisettes can be readily changed to the manufacture of towels, if necessary.

In whatever field standards are used for the purpose of planning for the future, the standards themselves obviously must be available in advance and hence must be "planned" themselves.

Company Standardization

If it is agreed that the agency setting up company standards is to executive management as the cerebellum is to the brain, top executives should take a deep interest in the organization of the standardization work for their business, not only as a habit-forming agency but also as an aid in effective planning. The organization of company standardization work has been discussed in more detail elsewhere.[4] It requires the observance of certain basic principles and in addition some special "hand tooling" in connection with the branch of industry to which a company belongs, the type of its internal organi-

[4] Industrial Standardization, Its Principles and Application, by John Gaillard (The H. W. Wilson Company, New York) and Standardization—the Automatic Pilot of Management (*Advanced Management*, Vol IV, No. 5), same author.



Standard solutions of detail problems, readily available to the executive as elementary units for use in the planning of campaigns or policies, are like models of machine units used in planning a factory layout. They clarify the general problem and speed up decisions.

zation, etc. As to organization details, a concern in the chemical industry will require a somewhat different setup from a company in the mechanical industry. In all cases, the important point is that the executive should consider standardization as an integral part of company management and not merely as a technical function. The men in charge of the various departments of a company may be among the best experts available, and each of them may be capable of having his department either adopt or develop the standards it needs. However, where *company standards* are concerned, that is, standards that are to be observed by the organization as a whole and affect the company's relations with the outside world (specifically, suppliers and customers), there will be cases where experts hold divergent views. To mention only one example, it is not unusual that the technical men and the sales force are at variance in regard to the type or style of product to be marketed. Top management can clarify such situations by the appointment of a company standards committee to be charged with the direct supervision of the standardization work in the company and its relations to similar activities outside the company—in the company's branch of industry, in the national field, and possibly also in international contacts. The standards engineer, secretary of this supervisory committee, will have to build up his own staff of clerical and technical help, which must be trained in the principles and technique of the "design" of standards.

The Time Element

This standardization machinery or "cerebellum" of company management may be able to do a splendid job of coordination, but if it is to aid executive management in *planning*, it must be kept informed regularly about existing conditions and trends. It is not sufficient that the company's standards be regularly passed in review to determine if they need revision. Axiomatic in modern standardization philosophy is the fact that a standard should never be considered as something fixed for all time—and usually not even for any considerable length of time. Review intervals should not be too long, lest a standard become "stale" and lose its value as an active coordinating factor. But what we have in mind more particularly here is that the standards department should continuously receive news about any developments, inside the company and outside, that may affect the company's standards so that, if necessary, these may be revised, abolished, or supplemented. This condition may be best understood by comparison with the artificial "cerebellum" which the engineering mind has applied to physical machinery—the automatic control device. Whether this be an "electric eye" device ready to cause a door to be opened when the beam of light which it receives is interrupted, or the robot pilot which keeps an airplane on its course, the effective performance of a control device depends on two main factors: sensitivity to a condition or change in condition, and permanent watchfulness. Similarly, the company standards department should be kept in touch with the latest developments in the company's field, without there being too great a time lag which might destroy much of the value of the information received. Most of these data should be furnished the standards department by the various groups whose functions it coordinates. But the standards department

should also train its "tele-receptors" on developments in other organizations and even in other industries, that may yield useful material for the company's own standardization work. Any recurrent problem whose solution can be handed over to top management in form of a standard procedure will cut down the "reaction time" of the company as a working unit—that is, the minimum time which unavoidably must elapse between the moment at which an executive decision is made and the moment at which it is put into operation. Reduction of this "reaction time" increases the sensitivity of executive control. This important phase of company standardization work puts additional emphasis on the need of centralizing this work in a special agency, instead of assigning it to the various departments whose functions must be coordinated.

Rebuilding a Battered World

More and more, the essential purpose of standardization is understood to be coordination, the establishment of harmonious cooperation. The first page of the Industrial Mobilization Plan of 1939 stated: "War is no longer simply a battle between armed forces on the field—it is the struggle in which each side strives to bring to bear against the enemy the coordinated power of every individual and every material resource at its command." The badly battered world now sorely needs the coordinated power of human effort and material resources for constructive purposes. Even more than after World War I, standardization must help to make the most of what has been left.

Thirty years of analytical study and practical experience have refined standardization to the point where it has become a sensitive automatic control device of industrial management —valuable not only as a means toward technical improvement and economic production, but also as a basis of mutual understanding between individuals and groups. However, to be most effective, this control device has to be built into the very structure of the business organization, just as nature developed the cerebellum as an integral part of the brain. The "design" of this control device and its proper installation in an individual company deserves, and also needs, the interest and full support of its top executives.

Wartime Change Made Permanent in Code for Electricity Meters

Sectional committee foresees need for future changes; asks for suggestions and criticisms

By H. Koenig

UNDER date of August 1, 1947 the American Standards Association formally approved the revised edition of the American Standard Code for Electricity Meters, C12a-1947. This revision brings up-to-date a project which was initiated nearly 40 years ago.

In 1908, the Meter Committee of the Association of Edison Illuminating Companies undertook to produce a meter code which would cover the various phases of metering practice followed by all the operating companies. It was also the desire of the Meter Committee to obtain closer cooperation between the manufacturers and the utility companies, with particular emphasis on specifications for the operation and design of the electric meters.

The major part of the task of obtaining the test data and other necessary information was carried out by the Electrical Testing Laboratories. In 1909, after a year's work along these lines, the first issue of the code was presented to the Association of Edison Illuminating Companies. Then, in order to avoid duplication of effort, the Meter Committee of the National Electric Light Association was invited to cooperate in the project. Under the direction of the two meter committees, the Electrical Testing Laboratories con-

H. Koenig, *Electrical Testing Laboratories, Inc, New York, is secretary of the Sectional Committee on the Code for Electricity Meters, C12, which works under the sponsorship of the Electric Light and Power Group and the National Bureau of Standards. Dr F. B. Silsbee, chief, Division of Electricity and Optics, National Bureau of Standards, is chairman.*

tinued their work for another year, and in 1910 the first edition of the Code for Electricity Meters was published. Two years later, a second edition appeared. This edition remained in use and unchanged for nearly sixteen years. In 1920, a section on Demand Meters was issued. This combined 1912-1920 edition of the Code was approved as an American Standard in July 1922 and was assigned the identifying number, C12-1922. Then, in 1928, a completely revised and rearranged revision, including the section on Demand Meters, was published under the joint sponsorship of the U. S. Bureau of Standards, the Association of Edison Illuminating Companies, and the National Electric Light Association.

After a lapse of over ten years during which little if any work was done on the committee, a sectional committee of the ASA under the chairmanship of the late Dr J. Franklin Meyers of the National Bureau of Standards began holding meetings, leading to another revision which was completed in 1940 and approved in 1941.

During the war period, the sectional committee was more or less inactive, only one change being made since the code was issued in 1941. This change related to the extension of the periods specified for retesting watthour meters. A revised version of Section 827 covering this matter was approved (C12WS-1942) as an American War Standard. Following the general procedure covering war standards, it was necessary to reconsider this paragraph when the war emergency had passed.

The sectional committee was reorganized in 1946 under the chairmanship of Dr F. B. Silsbee of the National Bureau of Standards. There are now about 20 members on the committee representing the Association of Edison Illuminating Companies, the Electric Light and Power Groups, the National Electrical Manufacturers Association, the Public Service Commissions, the Rural Electrification Administration, the American Public Power Association, and the two general interest groups —the National Bureau of Standards and the Electrical Testing Laboratories, Inc. There appeared to be a general agreement (as indicated by a letter ballot) on the part of the members of the committee that the war schedule for the periodic testing of watthour meters be made permanent. This committee is working under the sponsorship of the Electric Light and Power Group and the National Bureau of Standards.

> Copies of the American Standard Code for Electricity Meters, with a supplement containing the 1947 revision, are available at $2.00. The supplement can also be obtained separately at 25 cents per copy.

The code has now been formally approved and copies of the revision are available at ASA headquarters. From time to time, further revision will have to be made. The addition of an insulation test, some changes in definitions, and other revisions of this nature are desirable but these will require a considerable time to formulate. As pointed out by Cyril Ainsworth, assistant secretary and technical director of the American Standards Association, in a recent letter to the sectional committee, "the work of your committee in formulating these specifications will become truly effective only when they have been widely adopted by the interests concerned." Members of the committee hope that the use of the code will be widespread. In order to assist them in future revisions of this code, they would welcome comments, criticisms, and suggestions from users and others interested.

St Leger Visits U. S.

HENRY ST LEGER, recently appointed General Secretary of the International Organization for Standardization (ISO), paid a

short visit to the United States late in September. Mr St Leger spent a week visiting the offices of the American Standards Association and conferring with Howard Coonley, President of the ISO. While in the United States, Mr St Leger also visited the American Society for Testing Materials in Philadelphia and the National Bureau of Standards in Washington. During his visit in Washington, he reported to Supreme Court Justice Robert H. Jackson in connection with the Nurnberg trials in which he took an important part.

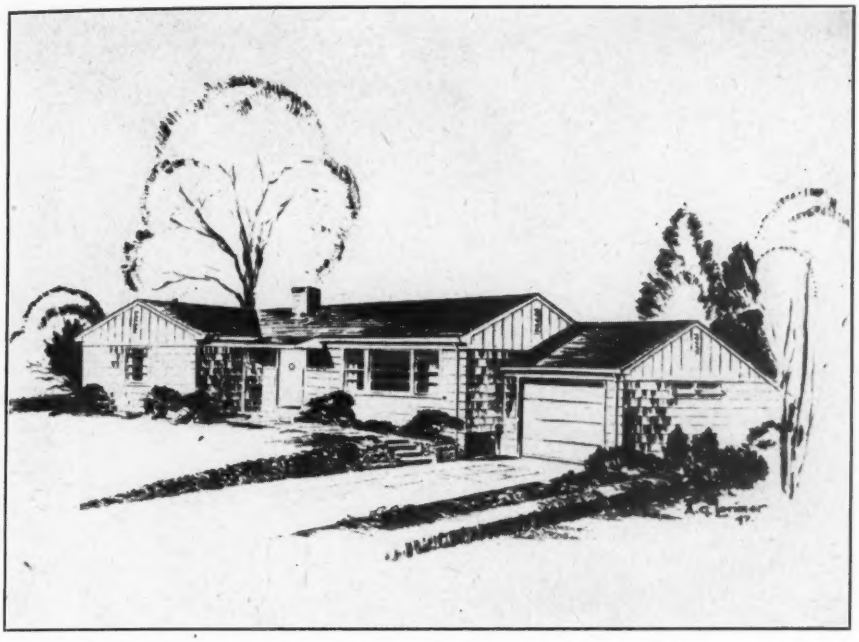
Mr St Leger also visited the United Nations and conferred with officials of the Non-Governmental Organization Section of the Department of Economic Affairs concerning plans for putting into effect the consultative status recently granted ISO by the Economic and Social Council. He is enthusiastic about the service that he foresees the new international standardization organization will have to offer in a world in which international cooperation on the political level is meeting great obstacles.

"In my opinion, the International Organization for Standardization can do much to bring about better international understanding through exchange of ideas between technical and business men of the member nations," he said. "It will serve as a clearing house for problems of nomenclature, definitions, dimensions of machinery and equipment, and many other problems which without international agreement cause difficulty in trade between nations."

Mr St Leger reports that until permanent offices are completed the ISO will have temporary offices in a villa in the wooded hills of Geneva, Switzerland. These temporary offices will be available within the next few weeks and he expects to be settled and in operation by the end of October.

Modular Coordination

Gains in Use



An entire building structure and its component parts are designed around a standard grid in the plans of the Industry Engineered Housing Program.

Fourth standard in series applies 4-inch module to clay flue linings; makes possible adoption of modular principle by producers of brick, structural tile, and concrete masonry units.

WITH the recent approval of the newest American Standard in the field of modular coordination, ASA Sectional Committee A62 on Coordination of Dimensions of Building Materials and Equipment has added one more achievement to its rapidly increasing list of contributions to the building industry.

The latest standard, Sizes of Clay Flue Linings, A62.4-1947, follows the others in the series: Basis for the Coordination of Dimensions of Building Materials and Equipment, A62.1-1945; Basis for the Coordination of Masonry, A62.2-1945; and Sizes of Clay and Concrete Modular Masonry Units, A62.3-1946.

As the name infers, the object of the A62 committee is the coordination of building materials and equipment. "Coordination" in this instance refers to harmony in the relation of the sizes of interfitting parts. At the time of the committee's organization in 1939 it was decided to test a theory that by using a standard unit as a base, sizes of building parts might be fitted together at the erection site with no alteration. In addition to this, assembly details and building layouts could also be coordinated with building equipment sizes.

The objective is being attained. Committee A62, after selecting four inches as the standard module upon which to base this coordination, is going on to apply the principle to building materials and products. Standards providing dimensions that will assure coordination are in course of preparation. It is expected that a standard will soon be completed for the relation between the heights of floors and room heights. Work is also under way on a standard for the dimensions of kitchen equipment, windows and doors, and glass block, among other building elements.

Thus, the dream of Albert Farwell Bemis, great pioneer in modular coordination, is now being realized. Although he did not live to see the national organization of the project on coordination of dimensions of building materials and equipment, his work was carried on by his heirs who established the Modular Service Association. It was his heirs who, in 1938, requested that the ASA initiate the project and, a year later, under the sponsorship of the American Institute of Architects and the Producers' Council, Inc, a sectional committee composed of industrial, technical, and governmental agency representatives interested in building materials or in housing, was set up.

The Modular Service Association then undertook to supply this ASA committee with the secretarial and technical service necessary. A recent part of this work has included the establishment of a publication known as *Grid Lines*, which is freely circulated to architects and to the industry at large. Until the recent granting of a government research contract, MSA was supported almost entirely by funds available under the will of Mr Bemis.

The first thing that the committee faced in its formative stages was the fact that dimensional coordination is a fundamental building operation. It is the common problem in all building construction, for there must always be a coordination between sizes of interfitting or adjacent parts in the structure, and a correlation with the dimensions of the building. The method by which this coordination is accomplished, however, has a tre-

Modular Service Assn.

To achieve the economies of modular coordination, 4 x 8-inch face bricks were used in the construction of this factory. The vent opening has been sized to harmonize with all other dimensions in the building.

mendous influence on cost and efficiency of operation.

Before the organization of this project, an attempt to avoid field cutting and fitting meant that the individual architect had to predetermine and coordinate the sizes of materials and equipment used on a specific job and then order the products in these sizes. This involved additional work in design and generally increased the cost of producing materials and parts. Such extra charges often exceeded the small saving to be made at the construction site.

In many cases, manufacturers, who were trying to reap the benefits of mass production, standardized the sizes of their own products. While this was practical and economical for the manufacturer, the lack of a broad coordination between these established sizes was a basic cause of waste, extra cost, and a subsequent demand for custom-made items. The coordination of these standards under the modular system extends economy to the processes of building design and erection.

Therefore, a major objective of the A62 program is the adoption of coordinated sizes for all building products for which standardization is practical and economical. When the vast assortment of building products and combinations is considered, the great technical complexity of the undertaking becomes apparent. It then becomes obvious that a broad comprehensive basis for determining correct sizes is essential. This basis must be uniformly applicable to all classes of products and must provide useful and economical standardization without sacrificing practical flexibility in building design.

The committee's answer to this problem came with the proposal of a standard layout unit applied as a 4-inch grid. All building plans and assembly details would be related to the same standard four-inch grid. The sizes of materials and equipment items, which are the parts thus assembled, would be consistent with these details. This three-dimensional grid would provide the architect and draftsman with a simple, convenient, and uniform method of referencing and dimensioning drawings and would also constitute a simplified drafting technique. Dimensions between parallel grid lines would be four-inch multiples called "grid dimensions" and might be used for building layout.

These principles are now stated in more or less general terms in the American Standard Basis for the Coordination of Dimensions of Building Materials and Equipment, A62.1, approved in 1945.

The American Standard Basis, A62.1-1945, is supplemented by the American Standard Basis for the Coordination of Masonry, A62.2-1945. This specifies that coordinated sizes for masonry products established by supplementary American Standards shall conform to standard nominal units which include the mortar joint. The coordination of masonry products is in itself an accomplishment of great significance and affords economy and simplification for producers, architects, and builders alike.

American Standards Cover Sizes of Modular Units

Sizes of clay and concrete modular masonry units are specifically covered in the American Standard A62.3-1946, while clay flue linings have been converted to modular sizes in A62.4-1947.

The latter, the newest of the series, is particularly important to the brick industry because the chief item of business of the brick dealers in many small communities is brick for chimneys and fireplaces. These dealers could not handle the modular brick unless it could be used with the available flue linings. Until flue linings in modular sizes were assured, manufacturers were hesitant to convert their production. Reports from all over the country indicate now, however, that most producers of masonry products including brick, structural tile, structural facing tile, and concrete masonry units are rapidly adopting modular coordinated sizes.

In addition, new standards covering other building materials are in course of preparation. At the moment, project A62 has 17 study committees assigned to a wide variety of subjects including kitchen equipment, metal doors, glass blocks, window accessories, structural steel, and building layout.

With the widespread circulation of those standards already completed, more and more practical application of the module principle is being announced. The U. S. Army Corps of Engineers has not only urged the ar-

chitects of Veterans Administration Hospitals to use dimensional coordination and modular products, but has itself applied the principles to the working drawings for 500- and 1000-seat theaters for Army bases. As a result of its experience with modular coordination in the preparation of these drawings, the Corps of Engineers intends to use the method in developing basic prototypes for Army base requirements.

It is estimated that between 1500 and 2000 masonry manufacturers have already converted to modular sizes. Among the important jobs now under construction on which modular size brick is being used is the new administration building at the University of California at Los Angeles.

Although exact figures are not available, it is known that architectural offices throughout the country are making use of the modular system. In New York City, for instance, to assure economical construction, the new $8,000,000 Residence and School for Nurses, Bellevue Hospital, New York City, is based on modular planning, making use of dimensional coordination for the materials used.

> "The general availability of the new modular sizes of both brick and tile will lower the cost of masonry construction appreciably as designers and builders gain experience in the economical use of the new sizes which effect savings in both materials and labor."
>
> —Structural Clay Products Institute

The Industry-Engineered Housing Program, sponsored by the National Retail Lumber Dealers Association and the Producers' Council, Inc, demonstrates the savings to be made in the construction of low- and medium-priced houses through the use of modular coordination.

In another field, working drawings for the first stage of the proposed development of the Albany Airport (New York) are now being prepared. C. Coleman Carven, architect, who has been in charge of the design of the Terminal Operations Buildings, has summed up his experience with modular coordination as follows:

". . . this building was not originally planned to be done in the modular coordination system. It wasn't until we got into the contract drawing stage that it was decided to make the building modular as far as it was possible. I must confess that we approached this with fear and trembling, as this building is quite different in many respects than those we had been accustomed to. However, as the work progressed, we were able to discern more and more advantages in the system, and while it has perhaps been a little difficult for all concerned in the office, I am confident that our next jobs will run along more smoothly."

The international nature of the housing shortage has brought the use of the module before the world. The new International Organization for Standardization has authorized a technical project on building construction, part of which will concern modular planning. The committee itself has not yet been set up pending completion of negotiations regarding assignment of the secretariat.

Bureau of Standards Coordinates Building Work in Single Division

A NEW Division of Building Technology has been established at the National Bureau of Standards, made up of a number of sections and parts which have come to be exclusively concerned with various phases of building technology.

The new division is by no means a finished organization, Dr E. U. Condon, director of the Bureau, explained in announcing its formation, but, he said, it is felt that a unified attack on building problems can be more effectively achieved by concentrating these sections in a single division, though they cut across the classical lines of physics, chemistry, and engineering.

The nucleus of the new division consists of five sections: structural engineering; fire protection; heating, ventilating, and air conditioning; exterior and interior coverings; and codes and specifications. The structural engineering section will deal with the strength, stability, and stiffness of buildings, and the structural elements of buildings. The fire protection section will continue its work on fire resistance of building construction, the fire hazard of building contents, and fire detecting and extinguishing equipment. Heating, ventilating, and air conditioning systems and heat transfer through materials and constructions will be the responsibility of the heating and air conditioning section. The exterior and interior coverings section will handle roofing and waterproofing; floor, wall, and ceiling finishes

Handbook on Facing Tile Describes Modular Coordination

A *Modular Facing Tile Handbook* has been issued by the Facing Tile Institute. The result of years of patient work by the technical experts of the industry, it is illustrated and arranged to simplify the modular coordination of this product and make it a source of economy for all concerned.

The contents are presented in three parts: Part I includes specifications for Ceramic Color Glazed, Clear Glazed, Salt Glazed, and Smooth Unglazed Structural Facing Tile, together with tables listing the colors in which these products are available and fire resistance ratings of various facing tile wall assemblies; Part II contains illustrations of the various sizes and shapes; and Part III presents suggested assembly details and procedures for the modular layout of facing tile.

for buildings; and in general the chemical and physical properties of bitumens. The codes and specifications section will carry on work formerly performed in another division on building, plumbing, and safety codes and standards, building fixtures and service equipment, construction and maintenance practices.

As research techniques crystallize, work which is continuing elsewhere in the Bureau, such as acoustics, for example, may be transferred to the Building Technology Division, it was explained. Fundamental research on physical properties and constants will be conducted by the appropriate Bureau units at the request of the new division.

Research will be limited to the three fields of physics, chemistry, and engineering. Broader subjects, such as planning for housing developments, choice of sites, or aesthetic matters, do not fall within the scope of the Bureau's activities. However, cooperative work on the development of recommended code requirements and practices will be continued in close association with laboratory research so that the full benefit of such research will be available promptly for the use of national standardizing bodies. One of the major jobs for this year is the preparation for publication of much already accumulated research data.

While much of the work to be carried on will be primarily for the benefit of other governmental agencies, the results should be useful to the entire construction industry and it is intended that they shall be made available for the purpose, Dr Condon announced. In addition, research problems of interest to the industry as a whole, particularly where no other research facilities are available, will be undertaken to the extent that this can be done.

D. E. Parsons, formerly chief of the Masonry Construction Section of the Division of Clay and Silicate Products, is chief of the Division of Building Technology. George N. Thompson, chairman of the ASA Building Code Correlating Committee and formerly chief of the Division of Codes and Specifications, is assistant chief.

How California Has Modernized Its Accident Prevention Program

Recently organized Industrial Safety Board promulgates safety orders for State of California; Division of Industrial Safety is charged with accident prevention work; uses American Standard Safety Codes to bring about uniformity with codes of other states

By Paul Scharrenberg

DURING the past 20 years California has doubled its population, thus placing it third in the United States. During that same period it has tripled the number of its wage earners and presumably should have shown a corresponding increase in industrial accidents. Fortunately, this has not been the case. Actually, the official records show a decrease from 677 industrial deaths in 1925 to only 568 in 1945, or a reduction from 14.8 to 6.4 in deaths per hundred thousand of population.

However, following Governor Earl Warren's oft-repeated statement that "California should be made one of the safest states in the Union in which to live and work," the Department of Industrial Relations set about to reach that ideal figure known as the irreducible minimum so often sought by all safety organizations.

***Paul Scharrenberg** is Director of the California State Department of Industrial Relations, of which the recently organized Division of Industrial Safety is a part.*

With this in mind, the Department was completely reorganized in September 1945. Within the Department, there was created a separate, streamlined Division of Industrial Safety, entirely divorced from its former parent body, the Industrial Accident Commission. At the same time an Industrial Safety Board was established composed of five members consisting of the Director of the Department, designated by law as chairman, and four others appointed by the Governor for overlapping terms. This Board is charged with the duty of promulgating safety orders for the State of California.

About the time of the reorganization, an intensive campaign was initiated to revise and modernize the safety orders and to draft new orders for a more complete coverage. Many of the safety orders had been in effect since 1916 without revision; others, although revised from time to time, were considered to warrant further improvement. As a guide in revising existing orders and drafting new ones, various national and state agencies were canvassed and an up-to-date library of safety regulations was accumulated. There followed the sizeable task of digesting this material and checking it against the Divi-

sion's own experience to determine how far to go in revising the orders with respect to breadth of coverage and specific industries to be covered.

The analysis of the material from other agencies revealed that some states had adopted national standards almost completely; others had ignored them altogether. It was concluded, after preliminary survey, to continue a practice of long standing in California and to follow as far as practicable the American Standard Safety Codes as guides and models for the purpose of modernizing existing orders and drafting new ones.

American Standards Promote Uniformity Between States

The American Standard Safety Codes have been utilized not only because they are excellent in themselves but also for the purpose of effectuating standardization and uniformity with other states, which we believe is highly desirable. Lack of uniformity between states has been one of the most serious stumbling blocks in effective enforcement of safety regulations. Standardization throughout the country, we are certain, would be very helpful to manufacturers of industrial equipment, as well as to concerns who find it necessary to move equipment from one state to another.

Extensive use has been made recently in California of such American Standards as those covering metal and woodworking machines, paper and printing machines, textile and laundry machines, cranes and other hoisting equipment, gas systems for welding and cutting, grinding wheels, identification of piping, mechanical refrigeration, rubber mills and calenders, stackers and ladders, although all of the standards approved by the American Standards Association were consulted and parts of most of them used.

Advisory Group Represents Interested Organizations

The procedure in promulgating a set of safety orders is as follows: An advisory group is formed consisting of representatives of organizations directly interested in, and concerned with, the particular safety orders under consideration or who have information believed to be of value in drafting the orders. The group includes representatives of industry and labor, together with representatives of other organizations whose practical experience and knowledge can be called upon to assist in drafting the orders.

A first draft is prepared and discussed in great detail at meetings of the advisory group. In the light of suggestions made at these meetings, the draft orders are revised as appears desirable.

Industrial Safety Board Holds Public Hearings on Draft Orders

When the work of the advisory group is completed, public hearings are conducted by the Industrial Safety Board. The Board considers testimony presented at these hearings and makes such further revisions in the draft orders as then appear necessary and desirable. Following this, the orders are officially adopted.

The Division of Industrial Safety is also augmenting its service in the field of accident prevention by increasing its technical staff. This has been made possible by an enlarged budget enacted by the Legislature. In addition to the two headquarters' offices in San Francisco and Los Angeles, there are to be established branch offices in several of the smaller cities. This will make for a more efficient distribution of field personnel throughout the State.

Thus it is believed that through the revision of our orders and our expanded engineering activities, the physical conditions in California's places of employment will be made far less hazardous, and a still greater reduction in industrial accidents secured.

New Section to Develop Educational Program for State

To implement the work of the Department further, we are now adding an Educational Section to our organization. This section is being established to develop an intensive educational program throughout the State. Thus, it is expected that through the efforts of our engineers and the work of this educational section, a greater safety consciousness will be engendered which should reduce to a minimum the necessity of official enforcement.

In connection with its safety work, California has adopted another American Standard. In developing a completely revised and expanded program for compiling prompt and detailed statistics of causes of industrial accidents, the Division of Labor Statistics and Research of the Department of Industrial Relations has adopted the American Standard for Compiling Industrial Accident Causes, Z16.2.

With new and modernized safety orders based in large part on the American Standard Safety Codes, an expanded staff, prompt and detailed factual information on industrial accidents, and an intensive campaign of education, California moves forward in the serious task of preventing accidents and the saving of human lives.

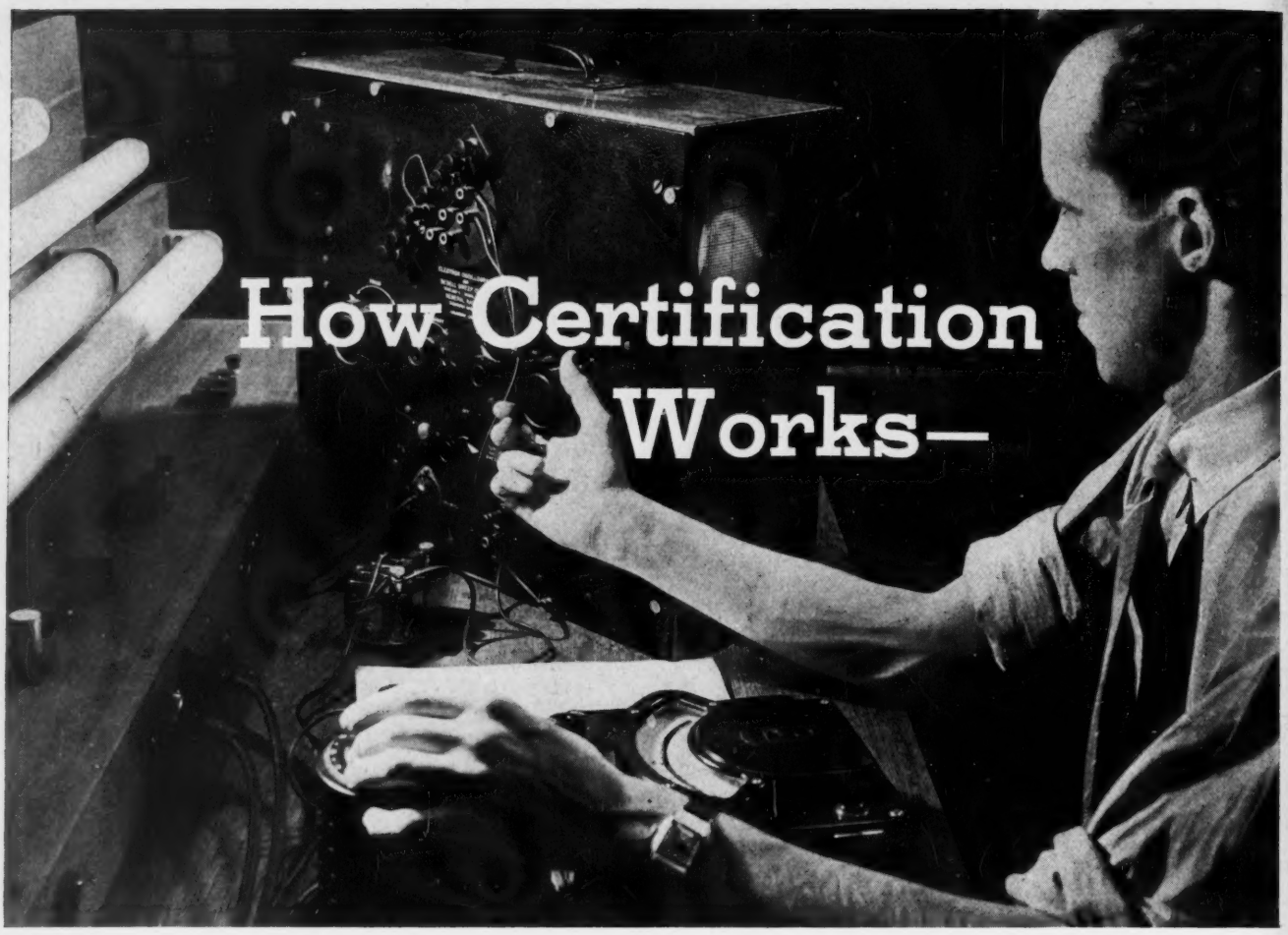
Next month Robert M. Murray, Chief of the Division of Industrial Inspection of the Rhode Island Department of Labor, tells how this State uses American Standards in preparing safety codes.

University Offers Courses in Hospital Management

Two courses in hospital management—standards of quality for institutional supplies and standards of quality for medical and surgical supplies—will be given by Dewey H. Palmer at Columbia University this fall. Mr Palmer, who is research director of the Hospital Bureau of Standards and Supplies, Inc, is active on several sectional committees of the American Standards Association.

In the first course, the major types of maintenance supplies and equipment for laundry, kitchen, heating plant, and building will be considered. Standards and service characteristics of soaps and cleaning compounds, institutional textiles, waxes and paints, insecticides, and wall and floor covering materials will be studied in detail. Consideration will also be given to the standards which have been established for processed foods.

Such types of materials as surgical dressings, adhesive tape, suture materials, rubber gloves and other rubber products, instruments, and drugs and pharmaceuticals are given detailed consideration in the second course. Emphasis will be placed on quality control of these materials in the purchasing procedure.



Test of fluorescent lamp starters for performance. These starters are subjected to life test of 20 hours continuous operation.

Specifications, Tests, Labels Used to Market Better Lamps

as told to INDUSTRIAL STANDARDIZATION *by the Electrical Testing Laboratories*

WITHIN the past few years, the deliberations of the American Standards Association have included a good deal as to how certification of products sold to the ultimate consumer ought to be carried out. This has been reflected in articles published in INDUSTRIAL STANDARDIZATION, which culminated in the July issue in a discussion of the new American Standard Practice for Certification Procedures by Dr Bernard L. Oser.[1] Now that approval of the standard practice for the certification procedure has been completed, it seems in order to consider the certification process as carried out.

An outstanding illustration is offered by the lighting equipment industry. The certification programs carried out by this industry started in 1919 through the promulgation of the Reflector - Lamp - Manufacturers specifications for industrial reflectors, including provisions for tests and certification. This program has evolved through the ensuing years, and in advanced form is now being conducted under the auspices of the RLM Standards Institute.

The certification process attained perhaps the greatest popular recognition in the case of the IES lamp, based on Illuminating Engineering Society specifications, production of which was halted by the war. It has been resumed under the auspices of the Certified Lamp Makers group. At the present time, it has developed to the point where a specification-test-certification procedure is being followed in the case of the leading products of industrial, commercial, and residential lighting equipment. Because in many respects this procedure closely adheres to the recommendations of the American Standard Practice, it is here reviewed.

Lighting Equipment Industry Marketing New Certified Lamps

During the past month the trade has engaged in progressive marketing of new certified portable lamps under the sponsorship of the Certified Lamp Makers. These include designs for nine different household uses. In addition, a program involving industrial lighting reflectors (under the RLM Institute) is con-

[1] Director of the Food Research Laboratories and chairman of the Sectional Committee on Principles Underlying Valid Certification and Labeling of Commodities, Z34.

tinuing. So is that of the Fleur-O-Lier manufacturers, producers of commercial lighting equipment. A program of the American Home Lighting Institute, producers of domestic lighting fixtures, is just getting under way. Manufacturers of component parts—glassware for portable lamps and ballasts and starters for fluorescent lamps—follow similar procedures.

Specifications

A provision common to all these groups is the adoption by them of specifications resting upon the conviction that the soundest development will result from:

(1) Specifications that are really in the public interest;
(2) Earnest efforts to make products that at least equal the specification requirements;
(3) Independent tests, and certification to the public that the product is in compliance when it is found to be so.

In general, the Recommended Practices of the Illuminating Engineering Society serve as a guide in the preparation of the illuminating requirements of these specifications.

Because the programs and the specifications are in a fluid state, these manufacturers are retaining them under their own sponsorship. When conditions shall have become stabilized, it is thought that they will bring the specifications and tests to the American Standards Association for review and, if acceptable, for adoption as American Standards.

All of the specifications call for testing of independently sampled specimens, with repeated check inspections. All provide for attachment of tags as evidence to the public that the equipment is acceptable under the respective specifications.

The purpose of the specifications in each case is to provide products which are efficient, durable, safe, and convenient in operation. They are intended to promote functional usefulness without restricting design. To insure this, the lighting units are tested not only for present light output, but also physical tests prove the strength of the design. The electrical and mechanical safety of the lamps is proved by high voltage and strain tests. Durability is proved by tests under conditions of high humidity, high temperature, etc.

The specifications are changed frequently to keep up with the new developments in the lighting industry. In all cases they are available to interested parties.

A Testing and Certification Service

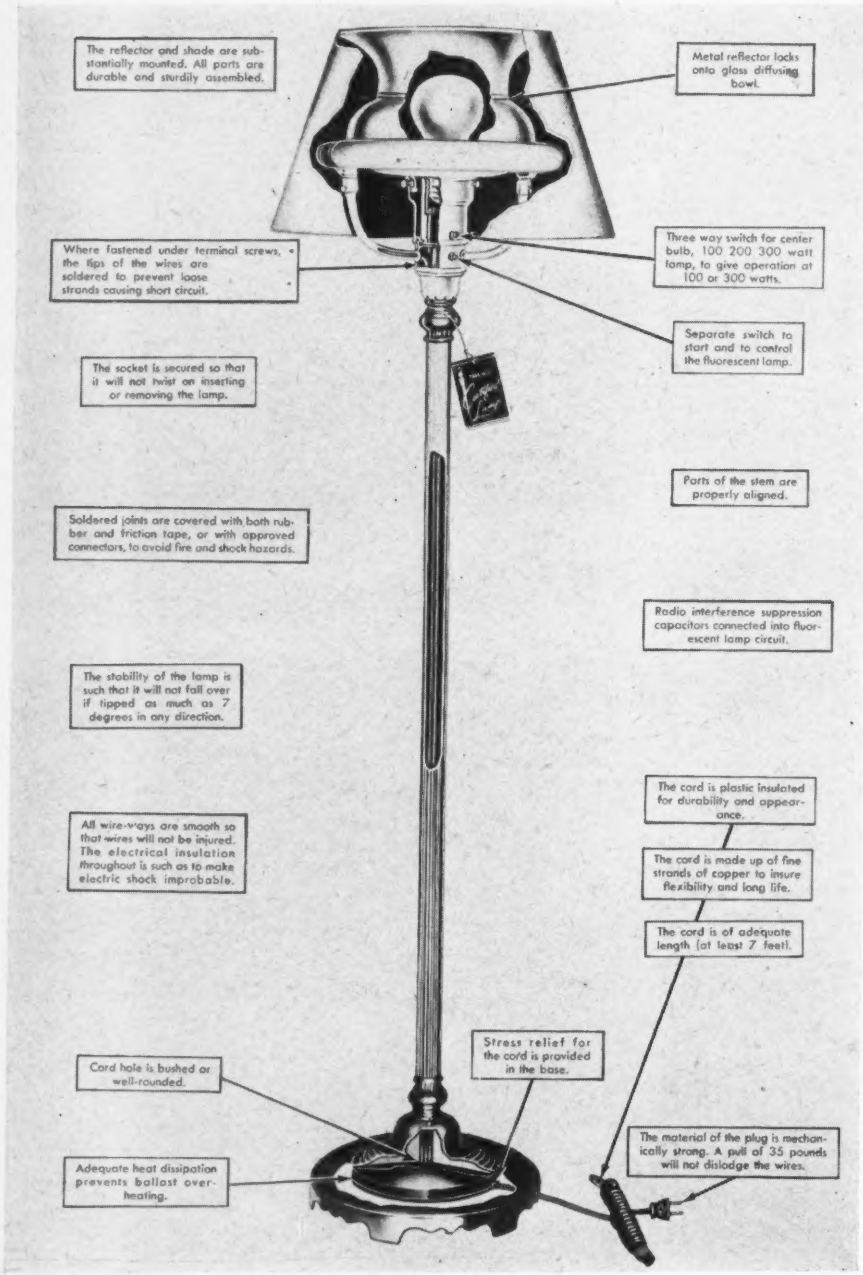
The testing and certification service is performed under contracts between the testing laboratory and the individual manufacturers. It is open to any manufacturer. The manufacturer agrees that, if a product is submitted and certified, the entire production of that product is to be certified. If both certified and non-certified equivalent products should be offered to the public, it would lead to unfair competition and confusion. A manufacturer, however, may make any other products and not submit them for certification. The continuance of the certification rests upon periodic re-examinations which are based upon the expected variation in quality. The inspections are always made as surprise visits without previous notice. The certification contract remains in effect only so long as such tests demonstrate that the product continues to comply with the specifications.

As experience indicates that improvements are needed, research programs are carried out, the results of which lead to the use of better materials, and improvements in both specifications and products. Such research programs have contributed to improved performance of switches,

THIS IS A
Certified Lamp
CERTIFIED
AS TO COMPLIANCE WITH SPECIFICATIONS
NAME OF MANUFACTURER
COMPLIANCE WITH SPECIFICATIONS UNDER APPROVED INSPECTION PROCEDURE OF RLM STANDARDS INSTITUTE CERTIFIED BY ELECTRICAL TESTING LABORATORIES, INC.
Label for Certified Lamp Makers
Label for R L M Industrial Fixtures
Certified FLEUR-O-LIER
CERTIFIED in accordance with Test Requirements of Specifications of Fleur-O-Lier Manufacturers
ELECTRICAL TESTING LABORATORIES, INC. NEW YORK, N. Y.
A·H·L·I
AMERICAN HOME LIGHTING INSTITUTE
CERTIFIED
Label for Fleur-O-Lier Fixtures
Label for Residence Fixtures
FLUORESCENT LAMP BALLASTS
"SPECIFICATIONS FOR FLUORESCENT LAMP AUXILIARIES"
ELECTRICAL TESTING LABORATORIES, INC.
FOR HIGH POWER FACTOR
FLUORESCENT LAMP STARTERS
Label for Fluorescent Ballasts
Label for Fluorescent Starters

Certification tags issued by the Electrical Testing Laboratories for lamps meeting requirements of efficiency, durability, and safety.

Skeleton view of one of the nine CLM types of Portable Lamps. Some of the more important provisions of the specifications are indicated.


The reflector and shade are substantially mounted. All parts are durable and sturdily assembled.
Metal reflector locks onto glass diffusing bowl.
Where fastened under terminal screws, the tips of the wires are soldered to prevent loose strands causing short circuit.
Three way switch for center bulb, 100 200 300 watt lamp, to give operation at 100 or 300 watts.
Separate switch to start and to control the fluorescent lamp.
The socket is secured so that it will not twist on inserting or removing the lamp.
Parts of the stem are properly aligned.
Soldered joints are covered with both rubber and friction tape, or with approved connectors, to avoid fire and shock hazards.
Radio interference suppression capacitors connected into fluorescent lamp circuit.
The stability of the lamp is such that it will not fall over if tipped as much as 7 degrees in any direction.
The cord is plastic insulated for durability and appearance.
All wire-ways are smooth so that wires will not be injured. The electrical insulation throughout is such as to make electric shock improbable.
The cord is made up of fine strands of copper to insure flexibility and long life.
The cord is of adequate length (at least 7 feet).
Stress relief for the cord is provided in the base.
Cord hole is bushed or well-rounded.
The material of the plug is mechanically strong. A pull of 35 pounds will not dislodge the wires.
Adequate heat dissipation prevents ballast overheating.

wires, finish, glassware, and other lamp components.

The Certifying Agency

The good faith, impartiality, and technical skill of the certifying agency are important. The manufacturers must have confidence in the agency, since the procedure brings the certifying agency into intimate acquaintance with the situation of each manufacturer involved. Through a checking service which not only covers the product during construction in the factory but also extends to the sampling of stocks of lighting units in the warehouses of utility companies, department stores, and other distributing groups, the agency and the participating manufacturers cooperate in protecting the certification procedure against misuse. A further check results from the examination of samples returned as defective by purchasers, although in many cases the complaint is not based upon manufacturing failures. In particular, the certifying agency takes steps to protect the integrity of its label.

In this lighting equipment industry, the Electrical Testing Laboratories, Inc, serves as the testing and certifying agency.

In General

Something of the extent of the certification activity in the lighting equipment field appears in the accompanying table. It may be said of all these groups that the leading manufacturers participate heartily in an endeavor to make the procedure fully effective and are zealous to avoid anything that will mar the good reputation of the certification, because a good reputation is essential to the success of the project. There have been occasional instances of departure from strict observance of the specifications and certification procedures. These are insignificant, however, in comparison with the strong intent of these manufacturer groups to insure thorough compliance with all requirements.

Certification Procedure Must Be Sound and In Public Interest

The principles of a certification procedure laid down in the American Standard Practice for Certification Procedures are sound and in the public interest, in the opinion of the many groups who took a part in development of the standard. From this description of their programs it is obvious that these manufacturer groups have also endeavored to make their certification procedures sound and in the public interest. It would seem natural therefore that the standard and the certification program should be in good accord. As a matter of fact, a preliminary study indicates no significant departures.

An element of strength in these lighting equipment certification projects, reports of the projects indicate, lies in the fact that they are supported and promoted by a whole industry. They are nation-wide in their effects and are considered worthy of, and receive, the support of all elements of the electrical industry. In the case of such projects, operating in line with the American Standard Practice for Certification Procedures, the public may accept certification with confidence.

TABLE I

Lighting Equipment Manufacturing Groups Which Are Engaged in Specification-Test-Certification

Name of Group:—	RLM Standards Institute	Fleur-O-Lier Manufacturers	Certified Lamp Makers	American Home Lighting Institute	Certified Ballast Manufacturers	Certified Starter Manufacturers	Certified Glassware Manufacturers
Prewar Antecedent—	Same	Same	Certified IES Specification Lamp Makers	American Lighting Equipment Association	Same	Same	Illuminating Glassware Guild
Year of Initiation—	1919	1940	1934	1940	1940	1940	1935
Status of Specification—	Available	Available	Available	Ready but not Released	Available	Available	Available
Number of Specifications Sponsored—	22	5	9	1	1	1	1
President or Chairman of Organization—	R. W. Staud Benjamin Elec & Mfg Co	G. T. Morrow Curtis Lighting Inc	Henry Feldman Aurora Lamp Co	Willard G. Sawyer John C. Virden Co	P. M. Staehle Gen Elec Co	—	—
Chairman of Specifications Committee—	Edward Huerkamp Westinghouse Elec Co	G. W. Beals The Miller Co	Frederick Schwartz Admiral Lamp Co	George E. Glatthar Art Metal Co	C. W. Kronmiller Gen Elec Co	A. B. Oday Gen Elec Co	Russell Test Phoenix Glass Co
No. of Certified Products Now Available—	141	75	250	—	108	44	8
No. of Manufacturers Having Certified Contracts with ETL—	13	19	107	2	9	7	10

Certified products which have been manufactured and sold by these manufacturers are estimated to involve a gross revenue of about 225 million dollars.

U. S. Delegates to Attend Electrical Meetings

Technical Advisory Committees of the International Electrotechnical Commission which will meet October 20 through 25 at Lucerne, Switzerland, include Radio Communication, No. 12; Electrical Accessories, No. 23; Extra High Voltages, No. 30; and a Group of Experts of the International Special Committee on Radio Interference (CISPR). Five delegates have been named by the United States National Committee of the IEC to the meeting of the Group of Experts Special Committee on Radio Interference. This meeting will consider recommendations for an interim standard for noise meters, and the U.S. delegates will present the U.S. viewpoint as compiled following a canvass of the Sectional Committee on Radio-Electrical Coordination, C63. The delegates are: Harold Beizer, Signal Corps Engineering Laboratories; L. W. Thomas, Bureau of Ships, Navy Department; Dr C. C. Chambers, Moore School of Electrical Engineering, University of Pennsylvania; H. E. Dinger, Naval Research Laboratory; and C. M. Foust, General Electric Company.

Mr Thomas will be representative to Committee No. 12 and Mr Foust to Committee No. 30. J. W. McNair, secretary of the U.S. National Committee of the IEC, will also attend the meetings and will serve as the representative to Advisory Committee 23.

Companies Support National Standards Work

The following companies, through their participation in and financial support of the American Standards Association, now have an active part in the national standardization program:

American Brake Shoe Company, New York, New York
James B. Clow and Sons, Chicago, Illinois
Ford, Bacon, and Davis, Incorporated, New York, New York
Inland Steel Company, Chicago, Illinois
Jones & Laughlin Steel Corporation, Pittsburgh, Pennsylvania
National Tube Company, Pittsburgh, Pennsylvania
Rudolph A. Salzer, New York, New York
Jervis B. Webb Company, Detroit, Michigan
The J. G. White Engineering Corporation New York, New York

Can Factory Painting Be Effectively Standardized?

By Carleton B. Ryder

In Two Parts—Part II

Color Analysis

With the composite system framed as outlined in Part I, INDUSTRIAL STANDARDIZATION, September, the second step in the General Electric study of a functional color system for factory painting was to determine specifications for the least number of colors that would satisfy all conditions. Picking eight colors from millions sounds harder than it was. Unwittingly, the originators of existing systems made the choice. It was reasoned that these paint manufacturers were eminently fitted by research, experience, and facilities to select the best colors for the purpose; their color sections, it was reasoned, would have been studiously made and would represent major tasks of condensation. But with so many to choose from, perfect agreement was too much to expect. So the recommendations of the various paint manufacturers were grouped and averaged.

This averaging of color recommendations could be done with the Munsell 100 Hue circle illustrated at the bottom of Fig. 1. This gives decimalar position for every conceivable hue arranged in spectrum sequence. For example, we know that green results from a mixture of yellow and blue paints. The circle locates yellow at 25, blue at 65; the average of these is 45, which is green. Now, if you spin a disk equally divided between yellow and blue, it looks green. Many small points of yellow and blue seen close together give the sensation of green. In a much larger sense the mind averages color sensations even over considerable intervals of time and space. So averaging hues by means of the color circle is an approximation of mental process. In other words, if many individuals independently selected hues ranging from 15 to 25 (or any other segment of the circle), the average of all would locate a hue representing the mean preference of the greatest number.

The six paint manufacturers rated highest by the method of analysis used were picked, and all available samples of the colors they recommended for functional factory painting were obtained from each, totaling 140 chips. These were grouped according to recommended uses, namely, (1) Ceiling, (2) Upper walls, (3) Task background, on machine, bench, or desk tops, (4) Lower walls, (5) Floors, (6) Machine body. Each chip was visually read for Percent Reflection Factor (%RF), and Munsell Notations. Then the following conclusions were reached.

1. Brightness Factor

As previously established, light and brightness were the first consideration. The average %RF of samples was found to agree substantially with previous recommendations for each use made by the General Electric Lighting Research Laboratory. Since the Munsell term "Value" (as defined in Fig. 1) is just another expresison of %RF, both could be determined upon as follows:

Use	*%Rf*	*Value*
1. Ceilings	75 to 80	9.0/+
2. Upper Walls	50	7.5/
3. Background	35	6.5/
4. Lower Walls	25	5.5/
5. Floors	15	4.5/
6. Machines	25 to 35	5.5/ to 6.5/

Factory management has yet to recognize the advantage of generally painting machines as light as this. Grays previously cited for possible standardization have RFs from 10 percent to 30 percent, indicating the probable range for the immediate future. However, it was felt that, where the condition or product warrants departure from gray to color, the lighter value is supportable. So it was determined to fix the value of machine color the same as that for lower walls (25%RF or 5.5/ Munsell Value) and thereby gain low contrast between machine and surroundings as well as one less brightness factor. There is no reason why the machine body and the lower wall should not be the same color—and even the floor, wherever light floor coverings are serviceable. So the system was reduced to five value steps from light to dark.

2. Color Factors

Hue was the second consideration. Samples grouped themselves in three distinct families: the tan (warm), the green (neutral), and the blue (cool). The gap between first and second clusters was large; between second and third, smaller. If the number of samples in each group is a sign of popularity, then 50 percent gave tan first preference, 31 percent placed green second, and blue came

Munsell System

Fig. 1

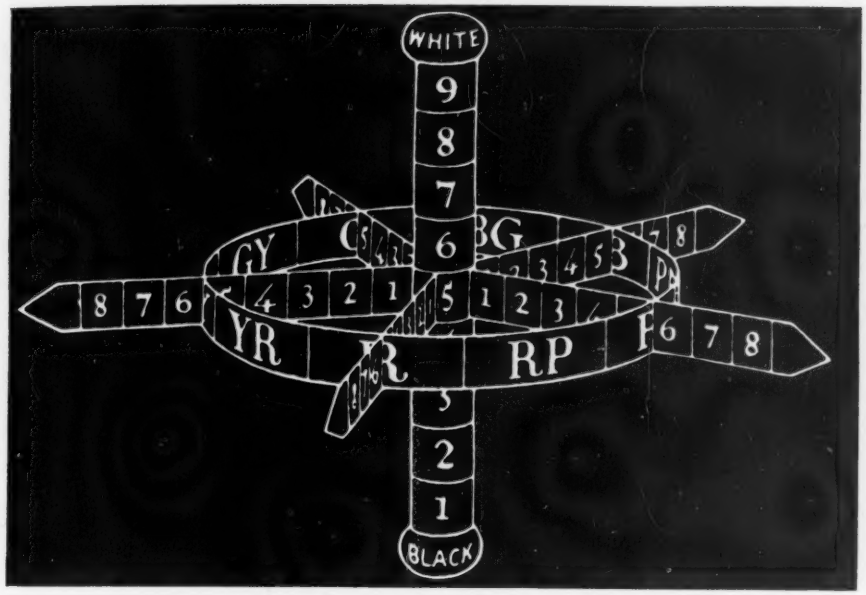


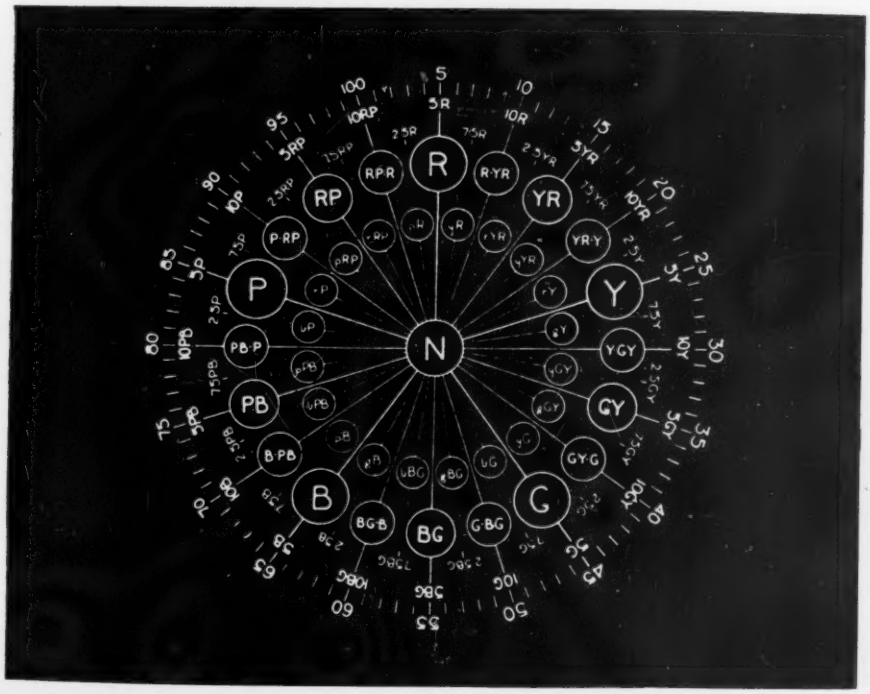
Diagram showing hue, value, and chroma in their relation to one another.

The circular band represents the hues in their proper sequence. The upright center axis is the scale of value. The paths pointing outward from the center show the steps of chroma increasing in strength as indicated by the numerals.

Hue: The distinctive primary characteristic of any chromatic color. In terms of hue we describe a color as red, yellow, green, blue, or purple.

Value: The lightness or darkness of any color. In terms of value we describe all colors as dark, middle, or light.

Chroma: The strength or weakness of a chromatic color. In terms of chroma, color is described as weak, moderate, or strong.



third with 19 percent. But authorities recognize that people generally form quick judgments in favor of reddish hues, even though the fact remains that over longer periods they tire of these warmer colors sooner than they do of nature's blue-green color scheme. All this, plus the advantage of further reduction in the number of colors was deemed sufficient ground for combining the second and third groups and winding up with only a tan and a blue-green group of 50-50 popularity. Averages were derived as described above. The number of groups times the number of values derived under "Brightness" gives a total of ten colors.

Reduction to eight colors was accomplished as follows: These average notations obtained from the paint manufacturers' samples were graphed as shown by the "X"s and "+"s on the chart of Hue and Value illustrated in Fig. 2. This graph should be visualized as a cylindrical extension of the Hue circle, slit and unrolled, with value measured in height. The five required light to dark values are the horizontal dotted lines. The two vertical lines are the contrasting midpoints between our two groups. The darker (lower) average color points in each group draw together noticeably, as do the lighter (upper) ones. So if smooth curves are drawn, as shown, through both tan and blue-green points, the right and left ends as well as the center connect to form a single curve.

This curve of preferred Hues intersects the horizontal required Values at eight points, the circled "X"s and "+"s in Fig. 2. Thsee are Munsell Hue and Value notation for eight colors: three intermediate tans, three intermediate blue-greens, a light yellow top and a dark blue-gray bottom serving either group. Although yellow and purple-blue were conspicuous by their absence, it was reasoned that Hue is not critical when the color is as light as the former or as dark as the latter. In fact, the quiet blue-gray is no less popular for floors than the light ivory yellow is for ceilings, as long as their Chroma (see Fig. 1) is kept low to avoid drawing undue attention to either floor or ceiling. Adoption of these two contrasting midpoint colors was found to have several advantages.

First, the number of colors is reduced from ten to eight, improving simplicity, economy, and standardization possibilities.

Second, two contrasting color schemes, satisfying contradictory

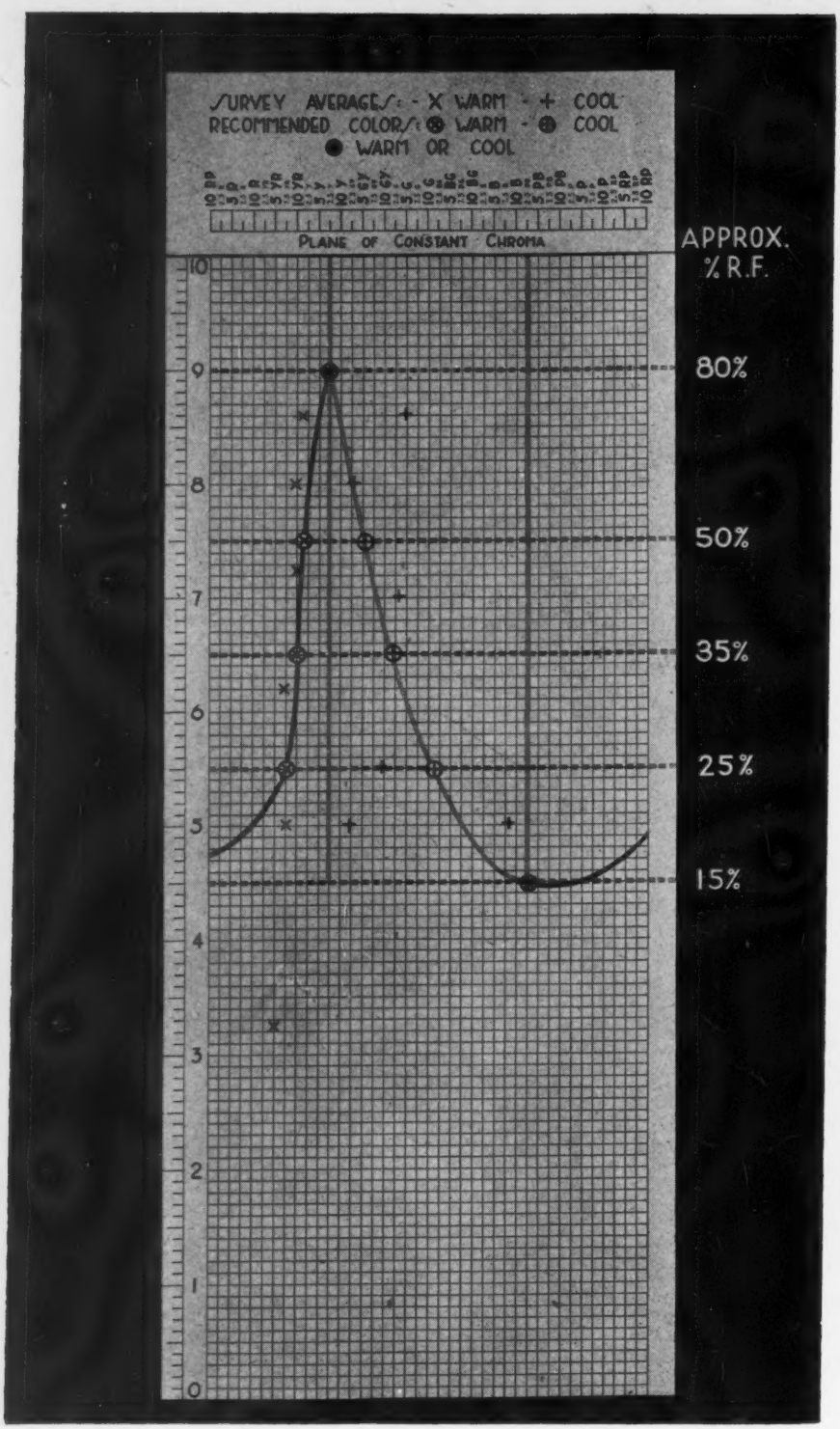


Fig. 2. Graph of paint manufacturers' samples showing how proposed standard colors were derived.

This graph should be visualized as a cylindrical extension of the Hue Circle, slit and unrolled, with value measured in height.

preferences, are welded into one, further simplifying and integrating the whole system.

Third, being based on contrast and accurately balanced spacing rather than the monochromatic, or single-hued, type of color harmony, its colors may be combined in any way—even from opposing groups—and any two or more look well together, removing the risk of color misuse in untrained hands.

Fourth, because the curve cuts diagonally across the graph, its colors vary in not one but all three dimensions of color—Hue, Value, and Chroma—and it has wider interest; it includes more different colors to appeal to more different people.

3. Intensity of Color

Chroma was the last remaining dimension to be established. Now, the attention value of a color is highly dependent upon the Chroma, or intensity. And coding must command the highest attention, admitting of no competition. So the Chroma of the colors used for factory painting must be low compared to the Chroma of those used for coding. It would be easy to obtain this difference in Chroma if it were not for the existence of the noncritical coding colors previously described which must be easily distinguishable both from colors used in factory painting and from colors used in coding for safety. This crowds the picture with three distinct Chroma levels. The specifications for safety coding colors, are already well on their way to standardization, but it remained to describe the bounds of noncritical coding before the Chroma of factory painting colors could be determined. This was done in the following way.

Research has shown that any color is surrounded by zones in which other colors are influenced in comparison. The first of these is a small area in which two colors cannot be told apart. Next is a zone in which colors leave the viewer uncertain whether he is looking at the *same* or *similar* colors. Outside the zone of colors conceded to be similar is a second zone of uncertainty as to whether the color is *similar* or in *contrast* to the first. If confusion is to be avoided, as in the present case, two colors must be separated at least beyond "similarity." There can be no question of their being "the same," *even in recollection.*

Through the application of this principle, it was possible to determine the intermediate Chroma level suitable for noncritical coding, and then to arrive at a Chroma of 1 to 1.5 for factory painting. It was also found that seven would be the maximum number of colors for noncritical coding sufficiently separated in Hue. (Seven such colors were derived in the process and will be tried as a possible company standard for such coding.)

This concludes discussion of the methods whereby a composite system of functional color for factory painting was developed by the General Electric joint committee. A discus-

sion of the development of the recommendations that were included on lighting is elsewhere available. Trials of the system are now being made in order to assemble data on the application of the system and the results. If others have had experience with similar systems, exchange of data will be welcomed. It is suggested that manufacturers consider these colors for floor coverings, desk or bench top surfacings, and prefinished walling and ceiling materials, as well as for paints.

Conclusions

The following summarizes the factory painting specifications that are now under consideration for application throughout plants of the General Electric Company. Fig. 3 illustrates the recommendation.

Summary of Factory Painting Specifications

Scope

To apply to the colors for painting industrial shop, office, rest, and recreational area ceilings, walls, floors, and machines, benches, desks, and other equipment; also for finishing machine or tool products where color is preferable to grays, black, or white.

Definition

The term "color," used here, is general and refers to Hues from 1 to maximum Chroma. (This may call for modification of the working definition of "gray" elsewhere given. See INDUSTRIAL STANDARDIZATION, Vol 16, No. 7 [July 1945], page 154.)

Tolerances

The matching of samples to master samples should be limited as closely as practical to the following:

Hue, ± 1.0
Value, ± 0.05
Chroma, ± 0.5

These are approximately the visual color thresholds for average persons.

Method

The determination, identification, and control of such recommended colors should be according to the Munsell spectrophotometer system as described in American War Standard Specification and Description of Color, Z44-1942. For coding, the American War Standard Safety Color Code for Marking Physical Hazards and the Identification of Certain Equipment, Z53.1-1945, should apply.

Lighting

General lighting of working areas should be adequate (50 fc* or the task, if practical). This may be supplemented to advantage by specific light on the task, in proportion to the lightness or darkness of the work itself, measured in %RF.

(*Continued on next page.*)

* *Editor's Note:* The American Recommended Practice for Industrial Lighting, A11-1942, recommends 50 fc for fine work. This standard, sponsored by the Illuminating Engineering Society, is now being revised.

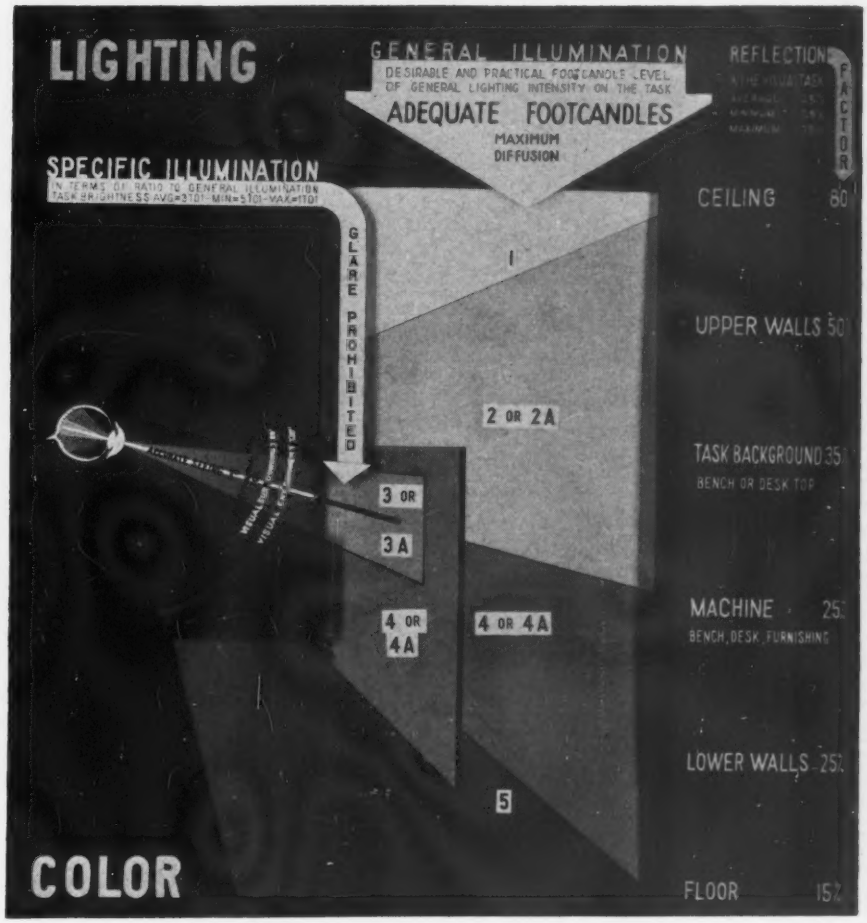


Fig. 3. The proposed specifications for factory painting now being considered for use in plants of the General Electric Company.

NO.	NOTATION	COLOR	APPLICATION
0	White or near	White	Ceiling—Where light is more critical than color
1	7.5Y 9/1.5	Ivory	Ceiling—Where color is important, as offices
2	5.56Y 7.5/1.5	Light Green	Upper Wall—Cool } May be applied to both
2A	2Y 7.5/1.5	Light Buff	Upper Wall—Warm } lower and upper walls
3	2G 6.5/1.3	Med. Green	Task Background—Cool } For bench and desk tops, for
3A	10 YR 6.5/1.3	Med. Buff	Task Background—Warm } "spotlight" areas only where practical, in contrast to task
4	1 BG 5.5/1.2	Dark Green	Lower Wall—Machine—Cool } Also for bench, desk,
4A	8 YR 5.5/1.2	Dark Buff	Lower Wall—Machine—Warm } floor coverings, or for trim
5	2.5PB 4.5/1.0	Lower Limit	Floor—Deck paint, etc, where lighting is adequate

1st Choice: Cool (green) color scheme is recommended for the majority of applications particularly where incandescent or sunlight, male workers, and heavy tasks predominate, as factories.

2nd Choice: Warm (buff) color scheme is recommended as an alternate particularly where fluorescent, blue-white or north light, female workers and light tasks predominate, as in offices.

Variations: Warm and cool colors may be combined in different areas of the same scheme to add interest. Particularly recommended for industrial rest and recreational areas.

Coding: Standard ASA Z53.1-1945 controls use of red, yellow, green, black, white for safety coding. The seven additional colors shown represent the greatest number that may be used for other coding with maximum contrast to both safety and interior colors.

A good rule to follow is:

For average tasks (about 25%RF), add three times the general illumination.

For dark tasks (about 7.5%RF), add five times the general illumination.

For light tasks (about 75%RF), double the general illumination.

It is believed that the work done and the recommendations arrived at in this study provide ample reason for answering "Yes" to the question: "Can factory painting be effectively standardized?" Apart from the very desirable clearing up of the mists of mysticism and confusion surrounding the subject, standardization should put functional factory painting on a paying basis—*both to supplier and employer.*

Color Specifications

Applications		Color Scheme	% Reflection Factor	Munsell Notation	Gloss Level
1. Ceilings	White or near-white where lighting is critical	Cool or Warm	75-80	7.5Y9/1.5	Flat or Eggshell
2. Upper Wall	May include both upper and lower walls, also trim	Cool	50	5.5GY7.5/1.5	Eggshell
2A. Upper Wall		Warm	50	2Y7.5/1.5	
3. Task Background	Also bench and desk tops as well as machines	Cool	35	2G6.5/1.3	*Machines,* semigloss; *Tops,* flat
3A. Task Background		Warm	35	10YR6.5/1.3	
4. Lower Wall	Also machines, desks, equipment, and floor coverings	Cool	25	1BG5.5/1.2	*Walls, desks, etc,* semigloss; *Machines,* gloss
4A. Lower Wall		Warm	25	8YR5.5/1.2	
5. Floor	Darkest lower limit where lighting is adequate	Cool or Warm	15	2.5PB4.5/1	According to materials

What Has Been Your Experience?

The American Standards Association welcomes the opportunity of publishing discussions of standards problems by Company Members. Perhaps you have had experiences that would help other standards departments organize their work more effectively or make better use of American Standards. Perhaps you want to let others know what turned out wrong when you used a national standard or how a new standard could help you in your work. If you want to "get it off your chest," INDUSTRIAL STANDARDIZATION will be glad to publish your comments and suggestions.

Please send your comments, or articles, to the Editor, American Standards Association, 70 East 45th Street, New York 17, N. Y.

Corn Industries Research Foundation Joins ASA as Member-Body

THE American Standards Association extends a welcome to the Corn Industries Research Foundation, newest Member-Body of the organization.

The industry which this group serves is known as the corn wet-milling industry in that corn is processed through chemical procedures. Its end products have a multitude of uses both in industry and in the food fields.

The standardization activities of the Foundation have to do largely with analytical procedures such as standard moisture methods, viscosity measurements, and standardization of process equipment from the corrosion standpoint. They have developed a standard viscometer to measure the pasting characteristics of starch and are now in the process of establishing referee procedures on the use of this instrument.

Several committees from the industry collaborate with other standardization committees, among them the American Association of Cereal Chemists and the American Society of Brewing Chemists. The purpose of this collaboration is the standardization of methods used to measure fermentable substances and those analytical methods which are of interest to the consumers of the products of the industry. In the American Standards Association, the Corn Industries Research Foundation is represented on the Sectional Committee for the Prevention of Dust Explosions, Z12.

President of the Foundation is George M. Moffett, Corn Products Refining Company, New York.

George M. Moffett

News from other countries

French Director Visits Brazil

For the purpose of strengthening French relations with the technical and industrial groups in Brazil, Ernest Lhoste, director general of the Association Française de Normalisation (AFNOR), paid a recent visit to the São Paulo office of the Associacão Brasileira de Normas Técnicas (ABMT).

During his short stay, Mr Lhoste also visited the Instituto de Pesquisas Tecnológicas, the Instituto de Eletrotécnica, and was received by the Federation of Industries. Among his other activities, Mr Lhoste addressed members of the Instituto de Engenharia, at which time he discussed French standardization and its use as a powerful instrument in the industrial reconstruction of France.

The São Paulo office of ABNT announces that it will receive very soon a complete collection of French Standards numbering more than 2,600 publications.

Poland Issues Standards Bulletin

The Polish standardizing committee has resumed publication of its Bulletin, *Wiadomosci*, and copy Number 1, dated July 1947, has been received in the ASA Library. The Bulletin is edited by a committee of engineers headed by Edmund Oska as chief editor. It contains articles of general interest on standardization, news items on international standardization, news about current Polish standards projects, and a summary of work being done by the different committees. This includes work on standard pressures, exterior walls built up as two waterproof partitions, a fire-fighting motor pump, and various characteristics of automobiles (basic dimensions, wheels and radii of turns, clearance under the chassis, weights, speeds, and power and efficiency). The Polish standardization committee has apparently been organized in a manner similar to that of the Standards Committee of Soviet Russia—both are under the jurisdiction of their respective Councils of Ministers.

Brazil Issues Book of Approved Standards

Now available in the ASA Library is the latest edition of *Normas Brasileiras*, the complete set of definitive Brazilian standards approved by the Associacão Brasileira de Normas Técnicas (ABNT) up to 1946. Contained therein are 7 codes, 13 specifications, and 50 methods of test. Recommended standards are being published in another volume. At its annual meeting in September, ABNT will probably transfer many of these recommended standards to the status of "Brazilian" standards which is the final and officially approved form.

Swedish Association Celebrates 25th Anniversary

The twenty-fifth anniversary of the organization of the Sveriges Standardiseringskommission, national standards organization of Sweden, was celebrated at a four-day meeting September 25 through September 27 at Stockholm. Technical papers on the application of standardization in a wide variety of fields, from agricultural machinery to book printing, were presented. A Standards Exhibition in the Technical Museum was one of the features of the occasion.

Highlight of the four-day meeting was the presentation of the newly instituted Royal Medal for Meritorious Standardization Work to those who had made outstanding contributions to the progress of Swedish industry through standardization.

British Chemical Symbols To Agree with American

The American Standard Letter Symbols for Chemical Engineering, Z10.12-1946, have been adopted by the Council of the British Institution of Chemical Engineers for use in all of the Institution's publications, reports the London *Chemical Age*.

New Heating Equipment Displayed in Britain

New equipment designed to meet heating requirements of the small residential as well as the large industrial installations highlighted an exhibit sponsored in London recently by Crane Ltd.

Combining increased efficiency with attractive appearance, this equipment is designed to comply with the latest British Standard specifications, reports the London *Engineering and Boiler House Review*.

Among the numerous other products displayed were valves and fittings which have been made in accordance with British and American Standard specifications.

New Standards from Other Countries

Standards from other countries may be borrowed by ASA Members from the Library of the American Standards Association.

Australia

Battery Terminals and Terminal Lugs (For Lead-Acid Batteries), Standard Specification for, C300-1947, April 1947
Combination Sinks and Drainers and Inpendent Sinks, Standard Specification for, A49-1947, May 1947
Hard Chromium Plating of Steel, Standards for, K98-1947, CK4-1947, June 1947
Lifts and Escalators, Standard Rules for the Design, Installation, Testing, and Operation of (Known as the SAA Lift Code), CA3-1947, Revised April 1947
Limits and Fits for Engineering, Standard Specification for, B95-1946, August 1946
Oxide Coating of Ferrous Metals in Hot Caustic Solutions, Standard Code for, CK3-1947, May 1947
Prevention of Electric Shock to Manual Metallic Arc Welding Operators, Standard Rules for the, CC5-1947, June 1947

Great Britain

New Standard Issued

Code of Procedure in Inspection of Copper-Base Alloy Sand Castings, BS1367:1947

Revised Standards Issued

Dimensions of Screw Lamp-Caps and Lampholders (Edison Type), BS98:1947
Rubber Insulated Cables and Flexible Cords, BS7:1946
Zinc (Fine, Special, and Foundry), BS220:1947

Foreign Language Standards

The standards listed below are available only in the language of the country from which they were received.

Austria

Clinker Bricks, B3220
Tiles, B3231

Belgium

Metallurgy: Sampling and Preparation of Test Pieces, NBN148
Metallurgy: Verification of Calibration of Testing Machines, NBN149

France

Chemistry—
  Tension Testing of Rubber, T46-002, June 1944
Domestic Economy—
  Equipment for Replacing Solid Combustible Boiler Heater by Gas Heater in Central Heating Systems, D35-334, January 1947
Marine Construction—
  Anchor Chains:
    Clevis for Attaching Anchor, J37-380, November 1946
    Demountable Joint Link "Kenter Systems", J37-340, November 1946
    Dimensions of Round Bars for Ordinary Chain Links, J37-310, November 1946
    End Links With or Without Swivel, J37-360, November 1946
    General Specifications, J37-300, November 1946
    Joint Links, J37-330, November 1946
    Ordinary Clevises, J37-370, November 1946
    Round Bars for Large Links and End Links, J37-311, November 1946
    Various Types of Links, J37-320, November 1946
  Condensers:
    Body of Stay-Bolt and Tie-Rods, J66-108, November 1946
    Details of Bolts Attaching Plates to the Shell, J66-115, November 1946
    Details of Tie-Rods-Stay-Rods, J66-109, November 1946
    Method for Installing Tubes, J66-106, November 1946
    Tie-Rods; Stay-Bolts; General Assembly, J66-107, November 1946
Mechanical Engineering—
  Cylindrical Splined Shafts, Nominal Dimensions, E22-151, March 1947
  Solid Screw Dies for Diameters 6 to 60 mm, E74-003, April 1947
  Sprocket Wheels for Chain Transmission; Number of Sprockets, E23-112, March 1947
  Tapered Shaft Ends of Refrigerator Compressors, E35-106, April 1947
  Vernier-Calipers, Type I, E11-091, March 1947; Type II, E11-092, March 1947; Type III, E11-093, March 1947
Metallurgy—
  Magnetic Tests, A04-101, April 1947
Paper and Cardboard—
  Standard Sizes of Pasteboards Intended to be Covered with Paper, Q02-002, April 1947
Railroads—
  Lag Screws, F50-005, August 1945
  Symbols for Marking Assembled Axels of French Colonial Railroads, F01-044, September 1946
  Symbols for Marking Assembled Axels of Various French Railroads, F01-043, September 1946
Various Industries—
  Strainers for Fire Pumps; Terminology, S61-842, April 1947
  Tables and Accessories for Medical Examination of Babies, S90-351, June 1947

Uruguay

Baryta (Natural Barium Sulphate) and Permanent White (Precipitated Barium Sulphate), UNIT47P
Determination of Softening Point of Bituminuous Materials, UNIT54P
Determination of Specific Gravity of Bituminous Materials Which Can be Manipulated in Fragments, UNIT55P
Determination of Specific Gravity of Bituminuous Materials Which Cannot be Manipulated in Fragments, UNIT56P
Ductility Test of Bituminous Materials, UNIT57P
Lithopone, UNIT43P
Penetration Test of Bituminous Materials, UNIT53P
Sampling of Aggregates, UNIT36P
Screen Testing of Aggregates, UNIT48P

British to Certify Electrical Appliances

British users of domestic electrical appliances will soon have protection against faulty and dangerous products through a new testing and certification program now being organized, announcements from Great Britain indicate. The British Standards Institution and the British Electrical Development Association have already set up a joint committee to decide upon future policy. Plans announced to date include the setting up of a "national testing house," tests based on British Standard specifications, and use of a certification mark. The certification will be on the basis of safety, and will not necessarily cover quality of performance. Up to the present time, Great Britain has been almost the only country in the world without some national scheme for testing and certification of electrical apparatus.

In the initial stages of the program, the "testing house" will act as a "disapproving house," it was explained. In other words, instead of setting a seal upon articles which pass safety tests, the organization at first will deal only with those products which do not come up to required standards. Eventually, however, when the BSI has completed new specifications to which electrical appliances should conform, a certification mark may be used to indicate approved products.

British and French Confer on Auto Parts

Standardization of car parts will be the subject of a conference in October organized by the British Institute of the Motor Industry and the French Society of Automobile Engineers.

The London *Daily Telegraph* comments that the British and French motor industries suffer from a multiplicity of designs in small parts and accessories.

Book Marks

Cumulative Catalog of Library of Congress Printed Cards (Library of Congress, Washington 25, D.C., $100.00 per year)

This catalog, now being published in nine monthly issues, three quarterly cumulations, and an annual cumulation, reproduces all the catalog cards prepared by the Library of Congress during the period covered by the catalog and is the latest step in the development of a central cataloging service started in this country a half century ago. It makes generally available the results of the cataloging processes by which the Library of Congress makes it possible for the users of books to find what they are looking for under standardized headings and under the specific terms in which they are interested. It is in effect an extension of the service started by the Library of Congress in 1901 when it began selling its catalog cards for use by other libraries. These cards are now found in the catalogs of most libraries in this country and of many in foreign countries as well. In addition, the Library of Congress has furnished "depository catalogs" of its catalog cards for general reference purposes at various places in the country. There have been too few of these to meet the need, and, since they demand the separate interfiling of some 60,000 cards a year, require too large a maintenance cost. In 1942 the entire catalog of Library of Congress cards (some 1,925,000) were printed in book form under the auspices of the Association of Research Libraries. The Cumulative Catalog now being issued continues this compilation on a current basis. On each page approximately 35 Library of Congress printed catalog cards are reproduced, each providing full cataloging information—author, title, publisher, descriptive notes, subject headings, etc—for as many different publications. Each issue of the bulletin contains the complete data by which more than 4,000 publications can be integrated into a system which includes standardized forms of entry and description, and a continuously revised scheme of subject headings and cross-references. There is also a choice between two methods of shelf-arrangement intended to bring books on related subjects together in accordance with the most-used systems of classification in this country, the Library of Congress system and the Dewey Decimal system. Finally, card numbers facilitate the ordering of catalog cards if desired.

History of the Development, Manufacture, and Calibration of HEI Standard Flow Nozzles (Heat Exchange Institute, 90 West Street, New York 6, N. Y.)

This pamphlet describes the background of a project undertaken by the Steam Jet Ejector and Vacuum Cooling Section of the Heat Exchange Institute to provide standardized flow nozzles for the measurement of air flow in the steam jet ejector industry.

As an initial step in this direction, HEI undertook an investigation of representative samples of the flow nozzles in use throughout the industry and developed standards for the manufacture of flow nozzles designed not only to obtain a high degree of accuracy, but also to promote a favorable reception by the public. The development of the standard design, the problems of manufacture, and the actual calibration of the standard flow nozzle are discussed.

Publications Relating to the Preparation and Revision of Building Laws, CD-1; Work Sheet for Checking the Dates of Standards and Specifications Incorporated by Reference in Building Laws, CD-2 (Construction Division, Department of Commerce, Washington 25, D. C.)

These two publications, designed to aid building officials and others interested in the modernization and revision of building codes, were compiled in response to widespread interest in the problem of improving building laws in communities throughout the country.

The first pamphlet lists a large number of publications available from public and private sources dealing with various phases of the building code problem. Part I, covering the general subject, groups the references under the following headings: significant discussions, national and regional codes, specific parts of codes, guide materials, and lists of catalogs and indexes. Part II, which lists publications available to specific parts of building laws, is organized for convenience according to the code arrangement recommended by the American Standards Association. This arrangement provides a framework of titles comprising the subjects usually covered in a building code. For example, under "General Construction Requirements" those publications dealing with specific types of construction such as masonry, reinforced concrete, iron and steel, and wood are included.

The Work Sheet, if executed according to instructions, is expected to reveal the following information about the codes examined:

(1) The extent to which standards and specifications are incorporated by reference.

(2) The agencies whose standards are referenced (American Standards Association, American Society for Testing Materials, etc).

(3) The extent to which referenced standards lag behind the most recent edition.

(4) Instances in which standards are referenced without a date.

(5) Instances in which standards are referenced "As amended from time to time," "As revised from time to time," "Latest edition," etc.

(6) Standards which are referenced as a whole and those which are referenced only in part.

"The information developed by these means should prove very helpful to a municipality or State which is about to revise its building code; it should also be of assistance in revealing to some extent the need for revision," the Construction Division states.

Supplement to National Directory of Commodity Specifications (Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., $2.25)

This publication is a supplement to the revised and enlarged edition of the National Directory of Commodity Specifications issued in 1945. It includes all new and revised standards and specifications issued subsequent to that date. The two volumes, which should be used in conjunction with each other, provide a complete compilation of current nationally recognized specifications.

The purpose of the National Directory is to list and briefly describe the standards, specifications, and codes that are formulated by all nationally known and recognized trade associations or technical societies that represent industry or some branch of industry, as well as all standards and specifications of governmental agencies that represent the Federal Government as a whole. Listed also are the purchase specifications of several departments and agencies of the Federal Government. Some of the items included are not for commodity specifications but are for closely related materials essential to most users and considered necessary to carry out the purpose of the Directory.

The same decimal system of classification of commodities had been used in this Supplement as was used in the Directory. This tends to group items relating to the same subjects together, thus increasing the value of the book to the purchaser who desires to make use of nationally recognized specifications, and avoiding unnecessary duplication of material by forewarning specification-formulating bodies of previous standards.

An alphabetical index lists individual items under their various trade and technical names, giving their decimal classification numbers, in order to facilitate the easy location of any item. Directions for obtaining copies of any of the specifications are also included.

Symposium on Testing of Parts and Assemblies (American Society for Testing Materials, 1916 Race Street, Philadelphia 3, Pa., $1.50)

The papers and discussions appearing in this volume were presented at the ASTM Annual Meeting in 1946. The symposium was sponsored jointly by the American Society for Testing Materials and the Society for Experimental Stress Analysis. It is one of a series which have been planned to promote a better knowledge on the correlation of testing and serviceability.

Edward P. Warner to Speak At Annual Meeting

EDWARD P. WARNER, President of the International Civil Aviation Organization, will make the principal address at the 29th Annual Meeting of the American Standards Association in the Waldorf-Astoria Hotel, New York, at a luncheon session on October 23. A former Assistant Secretary of the Navy, a member of the Harriman Mission to London, and vice-chairman of the Civil Aeronautics Board, Dr Warner will speak on the role of standards as an instrument of world peace.

Frederick R. Lack, President of the American Standards Association and Vice-President of the Western Electric Company, in making his annual report, will discuss standards as a weapon against inflation.

E. C. Crittenden, Chairman of the Standards Council of the ASA and Associate Director of the National Bureau of Standards, will report on the technical contributions made by ASA's working committees to commerce and industry during 1947.

The Annual Meeting will constitute a two-day series of policy and technical conferences. The meetings are scheduled as follows:

Wednesday, October 22

Sectional Committee on Letter Symbols and Abbreviations for Science and Engineering, Z10 10:00 A.M. Room 4M

Safety Code for Mechanical Refrigeration, B9 10:00 A.M. Room 4J

Company Member Committee 9:30 A.M. Room 4X

Mechanical Standards Committee 9:30 A.M. Room 4Y

Subcommittee on Graphical Symbols and Abbreviations for Use on Drawings, Z32 2:30 P.M. Room 4M

Thursday, October 23

Standards Council 10:00 A.M. West Foyer

Annual Meeting Luncheon 12:30 P.M. Wedgwood Room

Board of Directors 2:30 P.M. Room 4M

NBS Announces Commercial Standards and Simplified Practice Recommendations

Recent actions on Simplified Practice Recommendations, announced by the Commodity Standards Division of the National Bureau of Standards, include several standards approved and copies now available. Printed copies can be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D.C., at the prices shown. Mimeographed copies may sometimes be obtained from the Commodity Standards Division before printed copies are available.

Commercial Standards

Gowns for Hospital Patients, CS146-47—

Size designations, methods of measuring, and standard minimum measurements for gowns for hospital patients are covered in this new standard effective for production from November 8, 1947. In addition to specifications for the number of stitches per inch and the type of stitch used in sewing different parts of the garment, it also includes a recommendation that the collar facing be 1½ inch double thickness reinforced with bias tape.

Douglas Fir Plywood, CS45-47—

This is a revision of Commercial Standard CS45-45 and is effective from September 15, 1947. The grading rules in this revision cover five grades of Interior Type and seven grades of Exterior Type Douglas fir plywood; a laminated board for paneling, sheathing, concrete forms, cabinet work, and many other structural and industrial uses. In addition, there are included grade specifications for door panels, tests, standard sizes, size tolerances, reinspection rules, and nomenclature and definitions.

Perforated Clay Pipe, CS143-47—

This recommended Commercial Standard has now been accepted and is effective for new production from October 22, 1947. It covers definitions and requirements for materials, workmanship and finish, absorption, crushing strength, dimensions, and resistance to action of acids for bell and spigot type glazed perforated clay pipe of the following grades and sizes:

Grades—Grades shall be those known in the trade as standard strength and extra strength perforated clay pipe.

Sizes—Sizes for standard strength pipe shall be from 4 to 24 inch nominal inside diameter, inclusive; and for extra strength pipe from 6 to 24 inch nominal inside diameter, inclusive.

Power Cranes and Shovels, Convertible Full Revolving Type: Crawler, Truck and Wheel Mounted: Including Clamshell, Dragline, Lifting Crane, Hoe, Pile Driver and Skimmer Scoop Equipment (Export Classifications), CS90E-47—

Printed copies of this standard are now available at 15 cents each. It provides requirements, nomenclature, definitions, and information regarding application of

machines having shovel dipper capacities ranging from ⅜ to 2½ cubic yards (0.286 to 1.91 cubic meters) and crane capacities ranging from 2½ to 60 tons (2268 to 54,432 kilograms). It sets up uniform methods of taking dimensions determining working ranges, power, line speeds, line pulls, and lifting capacities for comparison of models offered by manufacturers for export from the United States.

ASA Standards Activities

Simplified Practice Recommendations

Heavy Forged Hand Tools, R17-47—

This is a revision of R17-43, copies of which will be available on or about October 15 at 10 cents each. The revision modernizes the recommendation for peacetime conditions, superseding the one developed during the war. It covers bars, blacksmiths' tools, hammers, mauls, sledges, hoes, picks, tongs, wedges, railway track and maintenance tools, and mining tools.

Iron Valves, R184-47—

Printed copies of this revised recommendation, first issued in 1942, are now available at 5 cents each. The document applies to the usual types of iron gate, globe, angle and check valves for primary pressures of 25-, 125-, 150-, and 250-pounds, and 100- and 800-pound pressures of water, oil, and gas. A simplified range of sizes is given for the various types and kinds of valves for each of the pressure ratings.

Surgical Dressings, R133-47—

This recommendation, printed copies of which are now available at 10 cents, supersedes the revision of 1938 and is effective from July 1, 1947. It considers standard nomenclature, materials, sizes, and construction for ready-made dressings, and other similar details. Also included are cut-sizes of gauze, and methods of folding hand-made dressings. The types of surgical dressings covered are sponges (all-gauze and cotton-filled), packs, maternity pads, and cotton balls.

Surgical Gauze, R86-47—

Printed copies of this recently revised recommendation are now available at 5 cents each. Various types of gauze products are covered, such as gauze in bolts, crinoline, bandage rolls, sterile gauze bandages, and sterile gauze in sealed cartons. The number of warp and filling yarns is given as well as sizes and put-ups. The current revision changes the 44 x 40 weave, heretofore used for bandages and bandage rolls, to 44 x 36. This change has also been made in the Federal Specification for gauze and has been proposed for the new pharmacopoeia by the Committee of Revision of the *Pharmacopoeia of the United States.*

American Standards Approved

Textile Safety Code (Revision of L1-1929), L1.1-1947
Sponsor: National Safety Council

Emulsion Position in Projector for Direct Front Projection of 16-Millimeter Silent Motion Picture Film (Revision of Z22.10-1941), Z22.10-1947

Emulsion and Sound Record Position in Projector for Direct Front Projection of 16-Millimeter Sound Motion Picture Film (Revision of Z22.16-1941), Z22.16-1947

Emulsion Position in Projector for Direct Front Projection of 8-Millimeter Silent Motion Picture Film (Revision of Z22.22-1941), Z22.22-1947

Picture Projection Aperture for 35-Millimeter Sound Motion Picture Projectors (Revision of Z52.37-1944), Z22.58-1947

Photographing Aperture for 35-Millimeter Sound Motion Picture Cameras (Revision of Z52.35-1945), Z22.59-1947

Specifications for 35-Millimeter Motion Picture Release Prints in 2000-Foot Lengths, Z22.55-1947

Method of Determining Transmission Density of Motion Picture Film (Revision of Z22.27-1941), Z22.27-1947
Sponsor: Society of Motion Picture Engineers

Practice for Street and Highway Lighting, D12.1-1947
Sponsor: Illuminating Engineering Society

Black and Hot-Dipped Zinc-Coated (Galvanized) Welded and Seamless Steel Pipe for Ordinary Uses ASTM A120-46; ASA G8.7-1947

Forged or Rolled Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service ASTM A105-46; ASA G17.3-1947

Steel for Bridges and Buildings ASTM A7-46; ASA G24.1-1947

Structural Silicon Steel ASTM A94-46; ASA G41.1-1947
Proprietary Sponsor: American Society for Testing Materials

Practice for Photographic Processing Manipulation of Films and Plates, Z38.8.3-1947
Sponsor: Optical Society of America

American Standards Reaffirmed

Engineering and Scientific Charts for Lantern Slides, Z15.1-1932 Reaffirmed 1947

Time-Series Charts, Manual of Design and Construction, Z15.2-1938 Reaffirmed 1947

Engineering and Scientific Graphs for Publications, Z15.3-1943 Reaffirmed 1947
Sponsor: American Society of Mechanical Engineers

Focal Lengths of Lenses: Marking, Z38.4.4-1942 Reaffirmed 1947
Sponsor: Optical Society of America

Standard Being Considered for Approval

Safety Code for Conveyors, Cableways, and Related Equipment, B20
Sponsors: National Conservation Bureau; American Society of Mechanical Engineers

Standards Withdrawn

Color Code for Lubrication of Machinery (American War Standard), Z47.1-1945

Annular Ball Bearings—Single Row Type and Separable (Open) Type, B3.1-1933

Annular Ball and Roller Bearings, Wide Type, B3.2-1930

Angular Contact Type Ball Bearings, B3.3-1933
Sponsor: Mechanical Standards Committee

Withdrawal of Approval Being Considered

Specification for 750 Volt Direct Suspension Overhead Trolley Contact, C15-1935
Proprietary Sponsor: American Transit Association

New Projects Initiated

Sound Recording, Z57
Sponsors: Society of Motion Picture Engineers; Institute of Radio Engineers

Steel Raceways for Electric Wiring Systems, C80
Sponsors: American Iron and Steel Institute; National Electrical Manufacturers Association

Women's Dress Sizes, L19
Sponsor: National Retail Dry Goods Association

Project Withdrawn

Leather Belting, B42

Projects Under Way

Building Code Requirements for Fire Protection and Fire Resistance, A51—

Sponsors: National Bureau of Fire Underwriters; National Fire Protection Association; National Bureau of Standards, U.S. Department of Commerce

A report on classification of occupancies prepared by the Subcommittee on Occupancies of Sectional Committee A51 is being widely circulated, and comments and suggestions are solicited by the committee for consideration. This report, issued for

informational purposes to those concerned with building codes, is not a standard but may become part of an American Standard, in its present or amended form.

The occupancies defined in the report, and the basis of classification for each, are: residential, business, mercantile, institutional, assembly, storage, and industrial. A classification known as High Hazard Occupancies is included which covers structures where special fire hazards exist because of the nature of the materials used therein.

Coordination of Dimensions of Building Materials and Equipment, A62—

Sponsors: American Institute of Architects; The Producers' Council, Inc

Study Committee 16, Kitchen Equipment, is now gathering complete dimensional data on sinks, ranges, refrigerators, washing machines, and dryers, as has been done for wood and steel cabinets. These will be analyzed as a basis for recommendations.

Studies are being arranged for the following:

Structural floors—The Modular Service Association has outlined a series of studies and a form for the American Standard to establish a uniform practice for the vertical referencing of floors. This will be a major undertaking, involving a large group of study committees.

Metal doors—The technical problems have been discussed with representatives of the metal-clad door industry, but further studies are awaiting the completion of the committee personnel to include hollow metal doors.

Toilet partitions and shower stalls—At the first meeting of this committee in Cleveland on July 25th, arrangements were made for collating sizes and dimensions which will be the basis for studies by the Modular Service Association.

Gears, B6—

Sponsors: American Gear Manufacturers Association; American Society of Mechanical Engineers

Approval of the amended scope of this project and of the personnel of the sectional committee has been given by the Mechanical Standards Committee by letter ballot. In approving the personnel, the committee recommended that the membership of the committee be reviewed in regard to active participation in the committee work by its individual members. The scope, as now approved, no longer contains the words, "selection of materials." After the sectional committee has explained that term, the MSC will consider it again. The scope now reads:

"Standardization of spur, helical, herringbone, bevel and worm gearing, covering general gear proportions; tooth form; mounting of gears; inspection of gears; nomenclature."

Safety Code for Conveyors, Cableways, and Related Equipment, B20—

Sponsors: American Society of Mechanical Engineers; National Conservation Bureau

A proposed safety code, work on which was started in 1925 and postponed during the depression of the 1930's, has now been completed and submitted to ASA for approval. Wide publicity was given the drafts during the development of the code, the sponsor organizations report.

Refrigeration Nomenclature, B53—

Sponsor: American Society of Refrigerating Engineers

The Subcommittee on Definitions of Sectional Committee B53 is querying a selected list of refrigeration experts for their interpretations of the meaning of the terms "commercial refrigeration" and "industrial refrigeration," and "quick-freeze" and "sharp-freeze." Leonard C. Bastian, chairman of the subcommittee, comments, "Whether such definitions can be 'clear-cut' or not remains to be seen, but I believe you will agree that the industry has a need for the best possible definitions of such terms." Mr Bastian adds, "Would you please be kind enough to advise us and . . . to suggest to the committee recommended definitions . . . for these terms."

Graphical symbols for refrigeration have already been completed and the sectional committee is now voting on whether they shall be presented to the American Standards Association for approval.

Electrical Measuring Instruments, C39—

Sponsor: Electrical Standards Committee

A subcommittee has been meeting regularly for one year to develop a revision of the American Standard for Electric Indicating Instruments, C39.1-1938. Ten drafts of the revision have been made to date, and the requirements for panel-type instruments have been completed. This coming year the committee hopes to finish up the work on switchboard and portable instruments.

Radio-Electrical Coordination, C63—

Sponsor: Electrical Standards Committee

Subcommittee 1 of Sectional Committee C63 met on September 3 to prepare recommendations for the American delegates to the meetings of the International Special Committee on Radio Interference (CISPR) to be held the week of October 20 in Lucerne, Switzerland.

These meetings on radio interference will be for the purpose of establishing an interim standard for noise meters which will be internationally accepted. The importance of the work, from the U.S. standpoint, is the fact that for some time to come the manufacturing facilities in the European countries will be impaired and much electrical equipment will have to be purchased in this country. Many European countries are required by law to have electrical equipment which meets certain requirements pertaining to radio interference. It is important, therefore, that the same method of measurement be used by all countries concerned.

Domestic Electric Flatirons, C70—

Sponsor: National Electrical Manufacturers Association

A change in the title and scope of this project to cover all portable electrical appliances in which the production of heat energy is the primary consideration, was approved by the sectional committee at its meeting May 12, and is now being considered by the Electrical Standards Committee.

The original request for a change in the scope of the project came from the sponsor body. The revised title now being voted on by the ESC is: Domestic Electric Flatirons and Other Heat-Producing Portable Household Appliances.

The following is the proposed expanded scope:

"Development of standards for domestic electric flatirons, hot plates, disc stoves, radiant heaters, and other household electrical appliances in which the production of heat energy is the primary consideration; covering methods of test, performance, durability, safety, ratings, nameplate marking, and informative labeling."

Standards for Electric Lamps, C78—

Sponsor: Electrical Standards Committee

At a meeting of Subcommittee 2 on September 5, 1947, the committee ordered to letter ballot the completed dimensional and electrical characteristics of general service fluorescent lamps, instant start lamps, and long-tube hot-cathode lamps. It is expected that the letter ballot will be completed early in October and that these data will be passed on to the sectional committee at that time.

Steel Raceways for Electric Wiring Systems, C80—

Sponsors: American Iron and Steel Institute; National Electrical Manufacturers Association

A new project on Steel Raceways for Electric Wiring Systems, C80, has just been initiated with the approval of the Electrical Standards Committee. The proposed scope of the project is:

"Development of standards for rigid steel conduit and electrical metallic tubing raceway systems and components for such systems, such as elbows, couplings, connectors, bushings, and locknuts."

The project was originally proposed by the American Iron and Steel Institute in September 1946. In March 1947, the National Electrical Manufacturers Association expressed its willingness to become co-sponsor with the AISI.

A sectional committee is now being organized and a meeting is planned for early fall.

Textile Safety Code, L1.1-1947—

Sponsor: National Safety Council

This revision of the 1929 edition is intended for safeguarding textile machinery and equipment by concerns operating them or manufacturing them. Requirements of the code apply to the design, installation, processes, operation, and maintenance of the machinery. In addition to a detailed section on General Requirements, there are separate sections dealing with the specific machines and precautions applying to the industry. The revision was brought about because of the necessity of keeping abreast of changes in the textile manufacturing industries in recent years. The American Standard is now available from the American Standards Association at 50 cents a copy.

Women's Industrial Clothing, L17—

Sponsor: Associated Manufacturers of Washable Service Apparel

The Advisory Committee on Ultimate Consumer Goods is now considering a change in the project's title to Women's Occupational Clothing, with the scope to read:

"Specifications for women's occupational clothing and uniforms including types, patterns, styles, sizes, construction requirements, materials, nomenclature, and labeling and marking requirements.

Note: Specifications for underwear, hosiery, footwear, headgear, gloves, and special processing apparel and safety clothing are not included."

This proposed change in title and scope follows the conversion from a war project to a peacetime project.

Designations for Rayons—

Following the request of the Vendors Relations Committee of the National Retail Dry Goods Association, the subject of designations of rayons was referred to the Executive Committee of the ASA Advisory Committee on Ultimate Consumer Goods. This Executive Committee recommended that a small informal conference be called to discuss this problem. The conference, which met on September 4, recommended to the ACUCG that a program on designations for rayons be initiated and be handled by the General Acceptance Method. Letter ballots on this subject are now being circulated.

Specifications for Wood Poles, O5—

Sponsor: ASA Telephone Group

The second draft of the proposed American Standard Specifications and Dimensions for Wood Poles, circulated to members of Sectional Committee O5 for consideration at a meeting held October 2 and 3 in Chicago, is now being sent to letter ballot of the sectional committee.

Office Standards, X2—

Sponsor: National Office Management Association

A proposed scope of activities, statement of function, and outline of avenues of approach for subcommittee 5 on Business Machines has been circulated to members of the subcommittee for comment and criticism.

Work has already been started on this subcommittee's program and a report of the Subgroup on Standard Attachment for Fastening Typewriters to Desks has been submitted to the full subcommittee. It gives a summary of the responses of typewriter manufacturers to a questionnaire sent out by the subgroup on method of fastening typewriters to desks. It was recommended that the Subcommittee on Office Equipment (Furniture) of the sectional committee also be brought in on this problem, and copies of the report have been sent to members of that subcommittee.

The Subgroup on Standard Nomenclature, Classification, and Description for Business Machines has developed a questionnaire to determine the need for specific standards for business machines and to decide on the priority of projects. It was distributed to all NOMA members and to selected members of other organizations. The members of the subgroup are studying a proposed standard commodity classification developed by the Bureau of the Budget in cooperation with other government agencies and business organizations. The question of classification will be given full consideration at the next meeting of the subgroup.

Subcommittee 2 on Office Papers met September 22 to consider a proposed program of activities developed by a subgroup. The program included the following subjects: papers used in the office; nomenclature, characteristics, testing methods, and significance of tests; basic sheet sizes; basis weights; colors; and specifications.

The Subgroup on Steel Desks and Tables of Subcommittee 1 on Office Equipment (Furniture) has compiled a tabulation of sizes of desks and tables now available from manufacturers.

Petroleum Products and Lubricants, Z11—

Sponsor: American Society for Testing Materials

A revised scope of the Sectional Committee on Petroleum Products and Lubricants, Z11, is now before the Board of Examination for approval. The proposed scope includes all types of lubricants, whereas the earlier scope was restricted to petroleum products. It reads as follows:

"The scope of the activities of the sectional committee shall include specifications, methods of test, and nomenclature relating to petroleum, to petroleum products (including products derived in part from petroleum), and to lubricants; but excluding road and paving materials, bituminous waterproofing and roofing materials, paint thinners, and electrical insulating materials."

Definitions of Terms Used in Retailing, Z36—

Sponsor: Bureau of Labor Statistics, U.S. Department of Labor

The Advisory Committee on Ultimate Consumer Goods has just completed a letter ballot approving the revision of the scope of project Z36 to read:

"Preparation of statements describing terms for use by the merchandising trade for advertising and labeling copy for the ultimate consumer, each description to be worded so as to furnish a clear, mental picture of the general, external characteristics of an item."

The scope had formerly been revised and simplified at the request of the sponsor, but at the first meeting of the sectional committee in February of this year, it was the opinion of the members that the scope under which the committee had been organized was so broad and involved so many factors that Sectional Committee Z36 would be unable to accomplish significant results within a reasonable length of time. This resulted in the submittal by the sectional committee of the scope just approved by the ACUCG.

New Members of Standards Council

The following new appointments have been made to the Standards Council by Member-Bodies of the American Standards Association:

American Ladder Institute—

William A. Flint, president, A. W. Flint Company, New Haven, Connecticut; and *James P. Ward, Jr*, executive secretary, American Ladder Institute, alternate.

Corn Industries Research Foundation—

Norman F. Kennedy, director of research, Corn Industries Research Foundation; and *Harry W. Brown*, engineer, Corn Industries Research Foundation, alternate.

Motion Picture Research Council, Inc—

Wesley C. Miller, chief engineer and assistant head, Sound Department, Metro-Goldwyn-Mayer Studios, who is also a representative of the Council on the ASA Sectional Committee on Standards for Motion Pictures, Z22;

Gordon Sawyer, Samuel Goldwyn Studios, who is a member of the ASA Sectional Committee on Acoustical Measurements and Terminology, Z24;

W. V. Wolfe, director of research, Motion Picture Research Council, who will serve as an alternate; and

W. F. Kelley, associate director of research, Motion Picture Research Council. In addition to acting as alternate on the Standards Council, Mr Kelley is a representative on the ASA Sectional Committee on Standards for Motion Pictures.

Left to right:—William A. Flint, Norman F. Kennedy, and Wesley C. Miller.

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